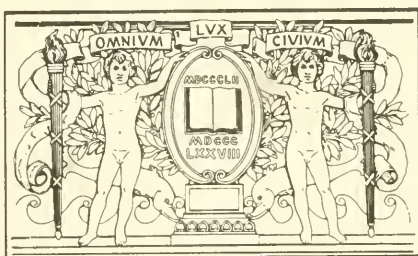


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Effective Industrial Use of Women in the Defense Program



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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

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Effective Industrial Use of Women in the Defense Program



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Amalgamated Clothing Workers of America
International Association of Machinists
International Brotherhood of Electrical Workers of America
National Women's Trade Union League
Steel Workers Organizing Committee
Textile Workers Union of America
United Automobile Workers of America
United Rubber Workers of America

EFFECTIVE INDUSTRIAL USE OF WOMEN IN THE DEFENSE PROGRAM

- I. Physical characteristics of the job must be suited to woman's physique.
- II. Safety assures continuous production.
 1. Machinery should be carefully guarded.
 2. Speed is a powerful factor in causing fatigue and accidents.
 3. Muscular strain should be avoided if women workers are to produce at their maximum.
 4. Minors must not be employed on hazardous processes.
- III. Women require special protection where industrial poisons are used.
- IV. The fine work many women perform calls for special lighting.
- V. Seats are vitally important for women workers.
- VI. General plant sanitation and safety is essential.
- VII. Practical work clothing for women prevents injury.
- VIII. Moderate hours of work result in quality and quantity production.
- IX. Minimum-wage standards and prevailing-wage standards should be maintained.
- X. Training and employment policies should be adjusted to women's needs.
- XI. Industrial home work should be prohibited on Government contracts.



Experience gained by the Women's Bureau in studying the successful employment of women during the first World War and in the 20 years thereafter is a guide for the participation of women in the defense industries to be expanded in the months ahead.

Though women have proved themselves able to do almost any type of work, careful consideration should be given, in planning a defense program, to their employment on processes where they have been found to be most efficient. Altogether, women workers have an important part to play in such a program.¹

¹ Experience in regard to women workers in the World War is discussed in great detail in the following publication: *The New Position of Women in Industry*, Bul. 12, Women's Bureau, U. S. Department of Labor, 1924. This report contains the following statement:

First. The popular belief that women in industry rendered real service to the Nation during the war is sustained by the figures showing the numbers of women employed both in war agent and implement industries and in war food and fabric industries, by the preponderance of evidence from employers holding important Government contracts, and by the official statement of the Assistant Secretary of War, acting as Director of Munitions.

Second. The labor shortage and excessive demands on industries essential to the production of implements and agents of warfare resulted during the war in—(a) A sharp increase in the number of women workers in these industries during the war. (b) A marked decrease in the number of women in the traditional woman-employing industries, resulting in a relief of the long-standing congestion of woman labor in these pursuits and in part contributing to a marked increase in the wage scales of the women remaining in these industries. (c) The employment of woman labor in other skilled crafts from which women had been practically debarred before the war.

Particular attention also must be given to the necessary health safeguards where women are employed, since they often are in jobs new to them, operating unfamiliar machinery, and affected more seriously than men by certain of the poisonous substances in common use in industry. Extended experience, both in commercial plants and in the World War industries in 1914-18, shows positively that the fullest productivity depends on adequate safeguards to health. In no country during the World War did the early patriotic enthusiasm, which led to long hours and strenuous work under adverse working conditions, turn out precision implements in quantities necessary for warfare. Nor could such enthusiasm maintain quantity production when harmful working conditions gradually undermined workers' health.

The defense program, calling for speed, quality, and quantity of production, can be attained and maintained over an extended period only when working conditions leading to fatigue, discomfort, ill health, or accident are eliminated.

The following factors have been found of utmost importance in a program aimed to secure successful production in part through the employment of women workers. They represent general standards, but for some of the particular industries in a defense program further provisions also are essential, and continual investigation and consultation is necessary.

I. Physical Characteristics of the Job Must Be Suited to Woman's Physique

There are certain types of work that women do particularly well. Examples are as follows:²

1. Women excel in work requiring care and constant alertness, good eyesight, and use of light instruments, such as gages, micrometers, vernier calipers—work calling for little physical exertion.

These are characteristics of such jobs as inspection of castings, machinings, and finished parts, of routine powder analysis, of testing electrical equipment.

² Ibid., pp. 93 and 142.

2. Women excel at work requiring manipulative dexterity and speed, but which permits the individual to set her own tempo and to work in a sitting position.

These are characteristics of bench work calling for laying out work for machine operators, operating very small machines to finish small and irregular parts, assembling delicate instruments and machines, loading shells, filling powder bags.

3. Women excel in work requiring skill but little strength, either in handling parts or setting up machines.

These are characteristics of drilling machines, lathes, milling machines, grinding and polishing machines operating on small parts.

4. Women operate large machines successfully on heavy work when such work, whether done by men or by women, requires the use of lifting devices and pneumatic chucks.

II. Safety Assures Continuous Production

Various estimates of the annual cost of industrial injuries run into millions, and these do not include the so-called incidental costs, which are found by analysis to be four times as great as compensation and medical payments. All possible methods of protection should be used to prevent injury from unguarded machinery, excessive speed, muscular strain, explosive chemicals, fumes, acids, dusts, or other harmful substances or conditions. This is especially necessary when women are employed on processes new to them. They will come in contact with complicated machinery and will need to handle dangerous materials and irregular and sharp objects.

1. Machinery should be carefully guarded.

Power machines cause two-thirds of women's permanent partial injuries, such as loss of fingers or permanent injury to other members of the body. The punch press is responsible for half the machine accidents.³ Typical accidents to women resulting from poorly guarded machinery indicate the problem.⁴

³ New York Department of Labor, Bul. 127, *Some Social and Economic Effects of Work Accidents to Women*, November 1924, p. 9.

⁴ Women's Bureau Bul. 60, *Industrial Accidents to Women in New Jersey, Ohio, and Wisconsin*.

A finger amputated when caught in the press because of an improperly set guard.

A crushed and lacerated right thumb and forefinger, due to catching the hand between the cross head of the punch and the top of an iron bar that was fixed on the machine in front of the die.

Loss of a finger tip because the socket on a reamer slipped and reversed the handle while the worker was trying to fix the machine. This occurred in an automobile-parts factory.

Injury to the right hand when a knitting machine started without the operator's putting her foot on the treadle, because the belt connecting her machine with the shafting was out of order.

In matters of testing machine guards and devising more adequate guards, the State departments of labor, divisions of industrial hygiene, and the United States Department of Labor may be consulted. Standard materials and dimensions for belts and belt guards have been approved by the American Standards Association.⁵ Further data as to guards can be obtained by reference to Safe Practices pamphlets of the National Safety Council.

In some cases the guard may be applied to the worker rather than the machine. From the number of goggle lenses shattered and replaced for workers in 166 steel mills over a recent 2-year period, a well-known optical laboratory estimated that 2,397 eyes were saved, an estimated saving of \$4,000,000 besides preventing untold misery. Painful eye injuries caused by shattered needles and flying fragments of buttons or snaps to workers on button machines are avoided by the use of a lightweight, transparent, plastic mask.⁶

2. Speed is a powerful factor in causing fatigue and accidents.

The speed involved in modern industry is one of the factors demanding that every part be in perfect working order to prevent accidents.⁷ Rapid processes are required, for example, when a shoe worker revolving the shoes so as to trim off surplus leather from the upper completes 5,200 shoes a day.

⁵ See Summary in the National Safety News, March 1939.

⁶ Factory Management and Maintenance, November 1939, p. 288.

⁷ See Women's Bureau Bul. 14, A Physiological Basis for the Shorter Working Day for Women.

3. Muscular strain should be avoided if women workers are to produce at their maximum.

Consideration should be given to the weight lifting involved in the job, with provision of special devices for continuous lifting or for heavy loads. Physical work depends on the total load carried per day, average load carried at a time, and duration of its carrying. Much helpful information about lifting equipment is given in the Safe Practices Pamphlets of the National Safety Council. Conveyor systems are the answer for continuous flow of material in process in one direction. The lift truck, hand or power operated, is one of the greatest energy savers, and eliminates motions hazardous to hands, feet, and back. The stacker or tiering machine eliminates much heavy work and many injuries due to handling material.⁸

Six States prohibit employment of women at tasks involving lifting or carrying heavy weights.⁹ Specific limits vary from 15 pounds to 75 pounds. The limit should be lower for girls under 18 years.¹⁰

4. Minors must not be employed on hazardous processes.

The Federal Fair Labor Standards Act provides that no girls under 18 may be employed on types of machines or in occupations determined to be hazardous by the Children's Bureau. The Public Contracts Act provides that no girls under 18 may be employed on production under Government contracts.

III. Women Require Special Protection Where Industrial Poisons Are Used

Women are likely to be more seriously affected than men by some poisons, and certain of these are used to a considerable extent in connection with various processes well adapted to women's abilities. The need for constant study of materials and substances, especially where newly used, cannot be too strongly stressed.

⁸ Help for Heavy Loads, in National Safety News, March 1937, pp. 166, 167, 170, 172.

⁹ California, Massachusetts, Ohio, Pennsylvania, Utah, Washington.

¹⁰ Overton, S. G. Report No. 44, Industrial Fatigue Research Board, 1927, p. 115.

Examples of substances that have a particular effect on women include:

Benzene, which may dispose to hemorrhage.¹¹ This is used in explosive plants, in airplane factories in doping the wings, in rubber factories, and in shoe and some metal plants.

TNT, dinitrobenzene, sulphuric ether, and various widely used producers of skin irritations (dermatitis). Women were employed extensively in explosive manufacture and in loading explosives.

Carbon disulphide, which is used in rubber and artificial silk manufacture. The dangers of this powerful poison seem to be more recently understood; it attacks the nervous system, producing a result similar to insanity. This serious hazard can be controlled by good workroom ventilation, together with adequate local exhaust.

Lead, used in rubber and storage-battery plants and in spray painting, as, for example, in automobile plants. It is perhaps one of the most common poisons in use in modern industry. While in some industries the hazard has been practically eliminated, other industries, plants, or processes develop its use.

Mercury, which is used in chemical plants, in photographic supplies, by browners on guns.

Arsenic, which is used in chemical plants, by electroplaters, and by workers on enamel and on rubber.

Silica dust, which is produced by grinding and polishing machines on which women work, and unless it is entirely removed from the air produces an incurable lung disease.

Exhaust systems are absolutely necessary to prevent the air from carrying to the worker the fumes from the poisons just listed, and from many other acids or chemicals such as mercury, wood alcohol, ammonia, and so forth; from gases such as carbon monoxide; and from dusts such as that caused by silica. Individual respirators often are needed where the process brings the worker near to such fumes and gases. All equipment should be inspected frequently to make sure that it is not worn or leaking so that it no longer protects. Furthermore, individual respirators often are not sufficient to take the place of adequate exhaust systems, and in the case of some substances, such as silica dust, it is absolutely necessary to have this removed from the air at its source by proper

¹¹ Hamilton, Alice, M. D. *Industrial Poisons in the United States*. New York, Macmillan Co., 1925.

exhausts or by effective wet methods. (See also the section on Ventilation.)

Where lead is used, the worker must be protected by exhaust systems, and, depending on the process, by gloves and by individual respirators as well, and there must also be provision for frequent washing of hands and other exposed parts of the body. Food should never be eaten in the workroom where such poisons are used. (See also the section on Washrooms and Lunchrooms.)

No easy panacea exists for protecting workers from all poisons. There must be continual study of the use of new substances, the methods of their use, and the employment of better-known materials in new processes. For the substances that have been long in use in industry, protective measures are known. The United States Department of Labor publishes small pamphlets telling of the effects of certain industrial poisons and giving suggestions as to their prevention.

New processes are constantly developed and these may mean introducing new substances whose effects are less well known. This happened during the years 1914-18. In connection with the experience in munition plants at that time, Dr. Alice Hamilton states:

There is no way of knowing how much illness and death resulted from the mad rush during the first months of the war, before the factories were in a position to carry on the work properly, to get out the product. Another thing that led to sickness in this work was its unfamiliarity. It involved new problems in engineering that had to be solved by men with little or no experience with these substances and reactions * * *. Undoubtedly also the newness of the substances employed and of their byproducts was responsible for many accidents. It is plain that in some plants the occurrence of a serious case of poisoning was the first thing that aroused the management to the fact that a certain process was really dangerous * * *. Such occurrences as [poisoning from nitrobenzol fumes, from TNT, or lung affections from nitrous fumes] were totally new experiences to the ordinary physician, and there was very little in the medical literature to help him * * * .

IV. The Fine Work Many Women Perform Calls For Special Lighting

Workers in poorly lighted factories are, in effect, partly blindfolded. Minimum requirements are as follows:

1. Sufficient illumination varying with occupation.
2. Proper distribution of light to prevent glare and shadows.
3. Consideration of lighting problems in seating arrangements.
4. Special aids for very fine work.

The National Safety Council states that 15 to 25 percent of all industrial accidents are due to poor lighting.

In a steel machine shop in Chicago an additional lighting cost amounting to less than 2 percent of the pay roll produced an increase in production of 10 percent.

In Great Britain glasses to relieve eyestrain were furnished drawers-in in textile plants, and sorters of lamp filaments, which are about half the diameter of a human hair. Relief afforded increased output from 8 to 26 percent for drawing-in, 20 percent for filament sorting and mounting.

A detailed study of output and errors in typesetting under different grades of illumination found maximum fatigue when minimum light was provided. The quality of the work suffered, as judged by number of errors, until the illumination reached 24.5 foot candles.

Lighting is measured in "foot candles," one unit representing one standard candle at a distance of 1 foot. It is determined by a small measure that can be carried about in the plant. The following standards for artificial lighting are the minimum needs for workers in various occupations according to the Illuminating Engineering Society. The illuminating for natural lighting should be at least four times the minimum specified for artificial lighting.

	<i>Foot candles</i>
Automobile manufacture—Assembly line	50 to 100
Textile mills—	
Cotton—Spooling, spinning, drawing, warping, weaving, quilling, inspecting, knitting, slashing	20
Woolen—Twisting, dyeing	10
Drawing-in, warping—Light goods	15
Dark goods	30
Weaving	15
Light goods	15
Dark goods	30

Foot candles

Steel and iron mills—Automatic machines, light and cold rolling, wire drawing, shearing, fine by line.....	15
Rubber manufacturing.....	10 to 20
Airplane—Repair departments.....	30 to 50
Foundries—Core making.....	20

V. Seats Are Vitally Important For Women Workers

Arrangements should be made so that women can change from a standing to a sitting position. The right kind of chair should be provided, adjustable to both the worker and the particular occupation.

The New York study of industrial seating made in 1921 found three striking facts about proper and improper seating:

1. Providing of chairs and tables suited particularly to the occupation increased production in a rubber factory so that 16 girls performed as much work as 20 had done before.
2. A foot-pedal operator who has to strain unduly to reach the pedal suffers from pelvic congestion with resulting harm to pelvic organs.
3. Addition of satisfactory foot rests and foot pedals in an electrical-supply factory eliminated much fatigue.

Women polishing metal could increase their output as much as 32 percent when special seats were provided that made it possible to work seated or standing, according to a British investigation.

In muscular work output has been found to increase from 2 to 13 percent when workers could alternate sitting and standing. Dr. Vernon, one of the foremost British authorities, concludes that such changes have even more effect than rest pauses.

VI. General Plant Sanitation and Safety Is Essential

Clean and well-ordered establishments are necessary for health of workers, and for their greatest production as well. This includes the following:

1. Washing facilities.

Washing facilities in convenient locations with hot and cold water, soap, and individual towels are essential, as is instruction in proper methods of use. Some more or less serious forms of skin infection (dermatitis) may result from many of the substances used in industry. When processes require

use of certain poisons, it is essential that hands be washed frequently.

A recent study in Pennsylvania of persons at work insulating wire whose skin came in contact with chlorinated naphthalene showed that this resulted in skin affections for about three-fourths of the workers reported. Children of parents having the dermatitis also were found infected as a result of the material being carried home on the skin and clothing of the worker. Both Pennsylvania and New York Departments of Labor found the disease could be prevented if, in addition to adequate ventilation, there were provided personal hygiene facilities including regular wash periods, provision of soap, cold cream, individual towels, and protective lotion.

In a study of industrial dermatitis, a noted Philadelphia skin specialist, Dr. Joseph V. Klauder, found numerous cases due to inadequate washing facilities or the use of harmful agents to remove foreign substances from the skin. “* * * an enormous number of cases of trade dermatitis are caused annually, not by substances encountered at work, but by their removal by methods harmful to the skin.” For example, (1) a woman in a printing shop used turpentine and kerosene for many years in order to remove stains from her hands and forearms. Dermatitis involved these areas. A patch test with turpentine showed her sensitive to this substance. (2) A woman employed as a machine “seasoner” in a tannery experienced dermatitis of both hands. For many years she had been using hypochlorite of soda to remove stains from her hands and this material was the cause of the infection.

2. Adequately equipped lunch room, dressing room, and rest room.

These are necessary not alone for the convenience of the workers. A very real health hazard may result if food is eaten or street clothes are hung in the workroom where poisonous substances or tools that may carry poisons are in constant use. For example, among the measures to prevent occurrence of lead poisoning are lunch rooms and dressing rooms separate from the work place.

Working efficiency is reduced if work is continued a long time without food, according to studies made by Harvard University. Facilities for getting a good noon meal reduce sickness, absenteeism, and fatigue.

Margaret Bondfield, formerly at the head of the labor department in the British Cabinet, stated that in 1914 when cafeterias were put in British munitions plants men and women workers had, for the first

time, hot meals on workdays. Production, morale, and general health were favorably affected. In this country men coming to C. C. C. camps after a period of unemployment and consequent lack of proper food gain 8 to 10 pounds and their working efficiency is thus increased.

Adequate rest rooms also contribute to the efficiency of the work force.

3. Good drinking facilities.

Pure cool water should be provided in places convenient to workers, with individual cups or sanitary bubbling fountains. Drinking water can promote health or spread disease. The American Standards Association has established detailed specifications for sanitary drinking fountains, available from that organization and well summarized in the *National Safety News*, March 1939.

Water will carry disease germs due to impurities in the source of supply or any other impurities with which it may come in contact before it reaches the drinker's mouth. It may be contaminated during storage, distribution, cooling, or by the way in which it is served. These sources all should be carefully investigated.

Among the diseases known to have been transmitted by depositing of germs upon drinking devices are influenza, diphtheria, scarlet fever, measles, whooping cough, cerebrospinal meningitis, poliomyelitis, smallpox, chickenpox, mumps, septic sore throat, syphilis, tuberculosis, pneumonia, and the common cold.

The effects of hot, heavy work in sapping strength and reducing production can be averted by additional supplies of salt to replace that lost through profuse sweating. Where heat fatigue may be a problem, salt tablets should be available in dispensers near drinking fountains. Dosage recommended is as follows:

	<i>Tablets daily</i>
Light to medium work.....	5 to 6
Medium to heavy work.....	8 to 10
Extra heavy, hot work.....	12 to 15

A large steel company in Ohio used to have as many as seven or eight cases of heat cramps and heat sickness a day during hot spells. They then began to install a few salt-dispensing machines with such good results that finally one was placed at every drinking fountain. In a later year, only one case of heat cramps occurred throughout the entire summer.

The medical director of an electrical-supply manufacturing company stated that cases of heat sickness had been common before the use of salt tablets. Cases have been rare since.

4. Separate toilets for women.

Toilets should be in locations convenient to workrooms. They should be kept in a sanitary condition. An adequate supply of toilet paper should be provided. Washing facilities should be located nearby. A ratio of at least 1 toilet facility to every 15 women is recommended by the Women's Bureau. It is important to have outside ventilation. More detailed recommendations also are made as to construction of toilets, materials to be used in bowls, and so forth. (See Women's Bureau Bul. 99.)

5. Ventilation.

Ventilation of the plant should have special attention based on scientific knowledge. This is of particular importance to the health of workers in defense industries, because injurious chemicals often must be used. Safe ventilation includes attention to temperature, humidity, air motion, and especially removal of injurious vapors, fumes, gases, and dusts peculiar to the industry. The following minimum requirements have been developed by experts in this field:

- (1) Supply of fresh air of not less than 1,000 cubic feet per person per hour.
- (2) Adequate air movement (20 to 40 feet per minute in winter and higher in summer).
- (3) Relative humidity not to exceed 70 percent and preferably less.
- (4) In work with poisonous vapors or dusts:
 - (a) Prevent escape of gases and dusts in the air.
 - (b) Use exhausts to remove these substances if they are present in the air.
 - (c) Provide adequate ventilation and movement of the air.
 - (d) Provide masks where necessary.

6. General plant housekeeping.

Every floor needs thorough daily cleaning to remove oils, grease, and materials which may cause falls and to remove dusts which may otherwise be health hazards. Falls accounted for

about 4,000 of the 27,000 compensated injuries in manufacturing in New York in 1937. Removal of dust from all surfaces also reduces fire and explosion hazards. Suction methods of cleaning are preferable. If sweeping is used, the floor must be moistened or sweeping compound used to prevent raising dust.

7. Provision of medical department.

It is essential in carrying out health and safety measures to have the services of an industrial physician, who may be continuously on duty or on call, and an industrial nurse.

The well-qualified industrial nurse can produce financial returns. As an example, one plant of 400 employees reduced its accident frequency 50 percent, cut down number of days lost 87 percent, and decreased medical aid cases 54 percent through employment of an industrial nurse.

8. Committees of workers.

Every plant should have a committee to whom harmful conditions of all kinds may be reported, and who will cooperate with management in safety education work.



STANDARDS ESTABLISHED BY STATES

Compliance with the safety, sanitary, and factory inspection laws of the State in which the work is performed should be the first requirement. Where State divisions of industrial hygiene exist, they should be consulted as to particular problems.¹²

STANDARDS REQUIRED IN FEDERAL ACTS

Where standards for labor have not been established by the State, it should be remembered that the Federal Public Contracts Act provides that no work shall be done in surroundings insanitary or hazardous or dangerous to health and safety of employees. This applies to supplementary materials as well as those contracted for.

¹² Industrial hygiene divisions have been established in the following States and Territories: California, Colorado, Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, Hawaii, and the Philippine Islands.

VII. Practical Work Clothing For Women Prevents Injury

The following general standards should apply on this important matter:

1. Clothing must be reasonably comfortable in any temperature in which it is worn.
2. It must fit and not interfere with workers' movements.
3. It must afford adequate protection against the hazard for which it is designed.

[See National Safety Council, *Safety Fashions for Women in Industry*.]

Safety hats.—A large metal-products factory in the Middle West has standardized work clothing for their women factory employees with safety in mind. The safety hat is a light comfortable cap of attractive design, confining loose hair and yet standing up from the head sufficiently so that revolving machinery cannot catch in the cap and from there into the hair.

Illustrative of the need for protective caps around moving machinery is the case of a girl whose hair caught in a machine as she leaned over to tighten it. Her head was pulled into the moving parts of the machine.

Gloves.—Protective gloves or finger stalls of material suitable to the hazard should be used where hot or sharp-edged parts are handled, and in some cases where substances used may poison the skin. Cuts and burns and skin diseases are reduced by these precautions.

Uniforms.—Uniforms sometimes are needed, as, for example, to prevent skirts from getting caught in machinery. One company has designed for its women employees a jumper suit that fits snugly for this purpose and is provided in attractive colors. Such uniforms are useful in work such as airplane repairing, where climbing is necessary.

Shoes.—Falls are a major cause of women's injuries, ranking first in most States reporting. Major causes of these may be wet or slippery floors, unprotected stairways, cluttered aisles, and so forth, but shoes play an important part in such accidents. Thin soles, high heels, worn-out shoes are hazards. The general rules that heels must be sensible, no cut-out toes, and no bedroom slippers are sufficient in many plants.

Where special safety shoes are needed they should be provided and required. In a study of the 36 foot injuries occurring in a rubber factory in 1938 it was found that 22 could have been prevented by use of safety shoes and 7 others much reduced in severity.

Leggings, spats, and aprons.—These may be a safety necessity for certain operations. A large plate-glass company has devised a special foot protector for girls, covering the ankle and top of the foot.

Jewelry.—Jewelry may be the cause of painful injury, and should not be worn at work around machinery.

Goggles.—The necessity for goggles is evidenced by the fact that 80 percent of the 1,800 to 2,000 eye injuries occurring in New York every year are caused by flying bodies. In a metal factory employing 25,000 workers, \$25,000 was spent on goggles with a resultant saving in two years of \$116,000.

VIII. Moderate Hours of Work Result in Quality and Quantity Production

The hour standards that have been established in the past few years should be maintained. Such a policy is possible and essential in the defense program. Such a policy is sound, as it will mean jobs for more workers. Thus expanded production should lead to employment of many more persons. The millions of unemployed men and women constitute an available labor supply on which to draw.

The effort to speed up production should not lead to longer hours or overtime for those already employed. Industrial history during the last World War and since proves that this is a short-sighted policy, whereas reasonable and regular hours mean more efficient workers.¹³

The moderate working hours recently set up as standards are conducive to increased production and better quality of goods. Such hours are a highly effective means of safeguarding the workers against undue fatigue and conserving their energies to enable them to produce steadily under pressure over a long period.

1. Daily and weekly hours.

The basic schedule should not exceed 8 hours a day and 40 hours a week.

This schedule is the standard provided by the Public Contracts Act, and that to become effective October 24, 1940, under the Federal Fair Labor Standards Act. In recent years many plants have adhered to this schedule and found it satisfactory.

¹³ See U. S. Department of Labor, Women's Bureau, Bull. No. 43, *Standard and Scheduled Hours of Work for Women in Industry*. Washington, D. C., 1925, pp. 1-10.

The following are typical illustrations of the value of moderate hours to a program of expanded production:

The 8-hour day.—An investigation by a committee of Federated American Engineering Societies, of continuous-process industries that had changed from 12-hour to 8-hour shifts, showed that no technical difficulties were encountered, and where good planning and care in execution were used, the effect on quality and quantity of production was satisfactory. For some plants in practically every major continuous-process industry there was reported an increase in production of 25 percent or more per man and a marked decrease in absenteeism and labor turnover.¹⁴

A report published in 1919 by the National Industrial Conference Board, on a survey of hours of work, contained the following statement by a representative of a large firm (conducting practically all branches of metal manufacturing) in regard to its change to an 8-hour day from longer hours: "We are convinced * * * that the shorter day does conduce to a larger output, better quality of work, better health conditions, to the decrease in the number of accidents, and to the contentment of our workers."¹⁵

The 40-hour week.—The United States Government Printing Office after changing to a 5-day week (40 hours) in 1932 reported that the production per employee had increased by from 4 to 10 percent and that the daily output of the plant was greater than in the 5½-day week (44 hours).¹⁶

2. Days of rest.

At least one and a half, and preferably two, days of rest should be allowed in every seven days.

The value of such a break in working time in terms of health and efficiency of women workers was stressed in a report by a committee on health of munition workers in Great Britain in 1915. This report dealt also with the detrimental effects of the long hours, including the 7-day week, that had been used during the first year of the first World War with the hope of speeding up production. The study proved the value of the changed policy of shorter hours. The following excerpts from the report are of interest:

"If the maximum output is to be secured and maintained for any length of time, a weekly period must be allowed. Except for quite

¹⁴ Federated American Engineering Societies. Committee on Work Periods in Continuous Industry. *The Twelve-Hour Shift in Industry*. 1922. pp. 13-14.

¹⁵ National Industrial Conference Board. Research Report No. 18. *Hours of Work as Related to Output and Health of Workers: Metal Manufacturing Industries*. July 1919.

¹⁶ U. S. Printing Office. *Annual Report of the Public Printer*. Washington, D. C. 1932, 1933.

short periods, continuous work * * * is a profound mistake and does not pay * * * output is not increased.¹⁷

"The importance to women of a wise limitation of their hours of work and an appropriate distribution of the pauses in those hours can hardly be overstated. The weight of scientific evidence is behind such limitation, and without it health and efficiency cannot be maintained. The week-end rest has been found a factor of such importance in maintaining health and vigor that it has been reinstated by employers who had taken it for work at the beginning of the war. The committee are strongly of the opinion that for women and girls a portion of Saturday and the whole of Sunday should be available for rest."¹⁸

3. Time for meals.

A regular time should be set for any meal eaten at the plant, the period allowed varying from 30 to 60 minutes according to circumstances.

Working efficiency is reduced if work is continued a long time without food, according to studies made by Harvard University.¹⁹

Where lunch facilities are such as to make a half-hour meal period practicable, workers often prefer this to a longer break in the work schedule in order to have an earlier closing period.

4. Rest periods.

A rest of at least 10 minutes in the middle of each 4-hour period without lengthening the workday is essential. The worker should not have to pay for such rest periods.

A report by the National Industrial Conference Board in 1919 gives definite data on the value of rest periods, compiled in a survey of 104 establishments in the United States, after they had introduced rest periods. Many firms reported an improvement in quality of work, especially where the task required concentrated attention. The management of an establishment employing 13,000 women stated, "We feel that it pays in output and quality of work to have rest periods."²⁰ Analysis of another study showed that in various occupations the immediate effect of allowing a rest period was to increase the output 2.8 percent, and in other groups tested some months after introduction of the rest period output had increased 6.2 percent.²¹

¹⁷ Great Britain. Ministry of Munitions. Health of Munition Workers Committee. Memorandum No. 1. 1915.

¹⁸ Great Britain. Ministry of Munitions. Health of Munition Workers Committee. Memorandum No. 4, Employment of Women. 1915.

¹⁹ Journal of Industrial Hygiene. Industrial Fatigue, September 1936, vol. 18, p. 417.

²⁰ National Industrial Conference Board. Research Report No. 13, Rest Periods for Industrial Workers. 1919.

²¹ British Industrial Fatigue Research Board, Report No. 47, 1928, p. 16.

Employees coming under the Fair Labor Standards Act must be paid for short rest periods (up to and including 20 minutes), the Administrator of the Act has decreed.

5. Overtime.

Overtime should be avoided as far as possible. The following illustrations stress the detrimental effects of overtime:

The report by the British Committee on the Health of Munition Workers, already referred to, stated: " * * * flagging output * * * characterizes the last hours of overtime during the day, and it is stated that the disadvantages of the overtime system are being increasingly recognized by employers." ²²

The decreased efficiency characteristic of overtime work is shown by a study of output in relation to hours in a motor plant on an 8-hour day and a metal plant on a 10-hour day. In the last hour of the day, even when allowance was made for stoppage of machinery, and so forth, the 8-hour plant had an output 10.2 percent below its own efficiency but the 10-hour plant showed a decline of 20.9 percent. ²³

When overtime is necessary it should be spread among all available workers. Overtime wages should be time and a half the regular rate of pay for each hour in excess of the 8 hours a day or 40 hours a week.

IX. Minimum-Wage Standards and Prevailing-Wage Standards Should Be Maintained

The health, morale, and efficiency of women as workers can be maintained only if they are paid wages sufficient to enable them to buy the necessities of life, and wages that are commensurate with the services rendered.

1. Minimum rates.

The rates set by the Secretary of Labor under the Public Contracts Act are required in plants in the various industries operating under contract with the Federal Government.

All minimum rates set up under the Federal Fair Labor Standards Act must be complied with by all establishments covered by the law. The act permits no wage differentials on the basis of age or sex.

²² Great Britain. Ministry of Munitions. Health of Munition Workers Committee. Memorandum No. 4, Employment of Women. 1915.

²³ U. S. Public Health Service. Bulletin 106, "Comparison of an Eight-Hour Plant and a Ten-Hour Plant," * * * February 1920.

Existing State minimum-wage rates must be complied with by all establishments covered unless such rates are superseded by Federal rates.

2. Wage policies.

Rates should be based on occupation and not on sex or race of the worker.

The standard of wages prevailing for men should not be lowered where women are employed.

Certain uniform practices in setting wage rates are essential to the good of all concerned. Effort should be made to arrive at clearly defined occupations or standard rates, whether computed by the hour or by the piece.

3. Overtime rates.

The rate of pay for all hours in excess of the basic hour schedule should be at least one and a half times the regular rate which a woman is paid.

4. Wages and living costs.

Wage rates should be revised periodically and adjusted to marked rise in cost of living.

X. Training and Employment Policies Should Be Adjusted To Women's Needs

The program of rapidly expanded production in defense industries calls for sound employment policies; otherwise, discontent among workers and dislocation among industries may result, and retard and cripple the program unduly. On the other hand, elimination of causes of friction will make for a satisfied and satisfactory labor force and greater output.

Such policies must be carefully worked out from the viewpoint both of the defense program and of normal manufacture of goods. The situation must be analyzed in regard to men and women workers, both those having jobs and those seeking jobs. Attention must be given to the needs of the present situation in relation to future needs, particularly the period just following the completion of the emergency program.

1. Dislocation.

Effort should be made to prevent dislocation in industry that is bound to result if women and men are drawn from their regular jobs into expanding defense industries. The present emergency program is not so acute as was that during the World War, when considerable sudden shifting of women to take men's jobs was essential. Also today there are large numbers of men and women available for the new jobs.

In the World War the "quick shift from a peace to a war footing contributed as much at first to the dislocation of normal industrial conditions as did the drafting of millions of men from the ranks of producers to the service in the Army and Navy."²⁴

2. Training.

Women should be trained for those jobs in defense industries for which experience has shown women to be fitted, and also for other new jobs suited to their physique.

3. Training methods.

Training in the plant usually is necessary for workers employed for processes new to them, but in many instances women may require somewhat more extensive training than men require. This is due to the fact that girls are not given the same opportunity in vocational schools to secure a general mechanical training and background.

Women should be trained in a special section before being assigned to the production room, especially for work in divisions hitherto staffed by men. This arrangement permits the weeding out of unsuitable workers and the developing of the best methods. It also prevents the slowing up of work in the production room that is bound to result from the presence and efforts of inexperienced persons.

When a foreman must train women, care should be taken to choose one who is willing and able to do this task, and who understands the lack of knowledge of mechanical terms on the part of many women.

²⁴ U. S. Department of Labor, Women's Bureau, Bul. 12, *The New Position of Women in American Industry*. Washington, D. C., 1920. p. 2.

During the period of 1914-18 the training section for women varied in size from one set up in the corner of a large workroom to large establishments giving intensive training to women workers. The typical school trained about 30 women at a time. Arithmetic, blueprint reading, the use of measuring instruments, were taught in addition to the operation of the essential machines. The length of the course varied from 10 days to 3 weeks.

Training in the plant should be a legitimate expense of the employer. Women as trainees should be paid an hourly rate until they are ready to go on into regular production work.

4. Personnel management.

The appointment of a competent person as employment executive where women are employed, with responsibilities for conditions and policies especially affecting women, is necessary. A well-qualified woman in such a position usually will get the best results.

5. Collective bargaining.

Opportunity should be given women workers to participate in trade-union organization and collective bargaining, which have been established by law as fundamental rights.

Women should be included among employee representatives charged with responsibilities for maintenance of existing standards or development of other desirable standards.

XI. Industrial Home Work Should Be Prohibited on Government Contracts

Home manufacture of industrial products is not likely to result in best production methods. During the World War disease and dirt were found in many homes where the sewing on Army goods was done, the women in these tenements working early and late to complete their tasks. Army overcoats were found in homes, piled in the dark bedrooms and in heaps on dirty floors.

Pay for industrial processes done in the home ordinarily is found to be far below pay in the factory, and it frequently is

true that several members of the family, including small children, must work to obtain these earnings.

Twenty States have industrial home-work regulation: California, Colorado, Connecticut, Illinois, Indiana, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, West Virginia, and Wisconsin.



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Lifting Heavy Weights in Defense Industries

Methods for Conserving Health of
Women Workers



Revised
edition
at end
of volume.

WOMEN'S BUREAU

U. S. DEPARTMENT OF LABOR

Special Bulletin No. 2

UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR



Lifting Heavy Weights in Defense Industries

*Methods for Conserving Health of
Women Workers*



SPECIAL BULLETIN NO. 2 OF THE WOMEN'S BUREAU

United States
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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,

WOMEN'S BUREAU,

Washington, February 3, 1941.

MADAM: I have the honor to transmit herewith a report on Lifting Heavy Weights in Defense Industries, summarizing the methods of conserving the health of women employed in such work. This study grew out of the need expressed by employers considering an expansion of their woman labor force for a simple outline of the problems involved and the steps necessary to protect women workers. It is hoped that training programs for women in defense work will give consideration to training in efficient methods of lifting and carrying.

To Dr. Alice Hamilton, medical consultant for the Department of Labor, and to Surgeon O. F. Hedley of the Division of Industrial Hygiene, National Institute of Health, both of whom read the report and made valuable comments and suggestions, I extend my thanks.

The research and the writing of this report are the work of Margaret T. Mettert of the Women's Bureau Research Division.

Respectfully submitted.

MARY ANDERSON, *Director.*

HON. FRANCES PERKINS.

Secretary of Labor.

LIFTING HEAVY WEIGHTS IN DEFENSE INDUSTRIES

Methods for Conserving Health of Women Workers

- I. Guard against injury to physique in the lifting of heavy weights.
- II. Analyze the elements in weight lifting to develop methods of saving energy.
- III. Overcome the dangers involved in lifting heavy weights by using certain methods.
 1. Introduce lifting and conveying devices.
 2. Provide efficient conditions for work.
 3. Inform workers as to proper methods of lifting.
- IV. Train workers to use the most economical methods of carrying weights.
- V. Protect the health of workers in heavy industries by physical examinations.
- VI. State regulation of weight lifting is more effective through the general authority granted regulatory bodies than through specific laws fixing maximum weights.



Factory-employed women in the United States in peace-time production are in light work almost exclusively. In a recent investigation by the Women's Bureau in the metal and machinery manufacturing industries of New Jersey, no women were found lifting and carrying material weighing over 25 pounds.

Experience both in this country and abroad has shown that in war industries women's employment involves lifting much greater loads. It is fairly certain that women in the United States soon will be employed on much heavier processes in defense production, with the immediate demands for rapidly increased output and the possible later shortage of male labor. Hence it is important to review the conditions that have been established as necessary to prevent serious injury to the health of women workers when engaged in processes demanding heavy lifting.

In the Bureau's recent study it was found that some of the metal and machine plants visited had employed women for heavy work in the war of 1914-18 and were considering their use at similar work for the present defense program. This work included:

Shell inspection (50 pounds). Shells would not be carried by women, but lifted, turned, and rolled on an inclined table.

Truck driving and loading. Lifting of various amounts into trucks.

Hand core making. At present women work on cores of 25 pounds or less. In the case of labor shortage they would be called upon to make larger cores.

Work on screw machines, lathes, presses, in which the material worked is of heavy weight.

The types of jobs that will require women to lift more considerable weights also can be shown from past experience. A partial list of occupations in which women were employed at various kinds of heavy work in the World War indicates the types of such work they may be expected to do now.¹ These include, for example:

Lathe operation on heavy work. Heaviest in munitions plants, where they cut shells weighing 19 to 100 pounds. (On heavy shells mechanical lifting aids were available.)

Operating automatic gear cutting or shaping machines to cut spur and bevel gears. Blanks from which gears were cut by women were very heavy.

Turning metal into rods, bars, wire, or sheets. Feeding and receiving strips through rolls. Much of the work entailed lifting of heavy ingots.

Core making. Heaviest core made successfully by hand by women in 26 firms studied weighed 45 pounds.

Loading shells. Lifting shell (weighing from approximately 20 pounds up), holding plug against revolving shaft, which grasped plug and unscrewed it.

Labor in petroleum refining. (369 women were found in 6 firms employed as laborers in various types of heavy work.)

Tire-making processes. These involved lifting tires weighing 14 pounds or more on and off spools. In some cases men were hired to do the lifting.

Unskilled manual labor. Much of this work involved lifting and pushing heavy materials. The maximum weight pushed by a woman was 750 pounds.

Loading and unloading.

Transporting material.

Shoveling sand and coal.

Piling boards in lumber mills.

¹ See Women's Bureau Bull. No. 12, 1920, especially pp. 100, 106-107, 108, 124, 128, 129-130, 133. (Out of print but available in libraries.)

In Great Britain still further types of heavy work were done by women during the World War. In a study of the physique of over 3,000 industrial women, they were found doing severe muscular work in the following occupations:²

Chemical works—Navy work: One woman shoveled 20 to 25 tons of crude borite a day, lifting it to a height of about $2\frac{1}{2}$ feet.

Brick setting and drawing—Filling and emptying ovens: Each girl carried three or four bricks, weighing $26\frac{3}{4}$ pounds each, a distance of 70 to 80 yards.

Brick molding: Slammed clay into wooden molds, then placed molded brick to dry on steam-heated stone floor. Women wheeled barrows containing 4 to $4\frac{1}{2}$ hundredweight of bricks.

Tin-plate industry—Opening, cold rolling, reckoning, pickling: Lifting was an essential part of each process. The average proportion of load to body weight was found to be 58 percent for young girls.

Sanitary-pipe manufacture: Carrying pipes of 24 to 50 pounds about 40 yards to be dried. Average weight lifted, 6.6 tons a day. Also, feeding pipe-making machines with wedges of clay. (The physique of girls in this industry was poor.)

Nuts and bolts: Press operators carried pans of nuts and bolts to their benches, the size of the load being left entirely to the worker. One woman carried as much as 93 percent of her body weight.

Pottery: Carrying of tiles, and baskets and bungs of biscuit ware. Ordinarily two women carried basket between them.

Paper: Carrying bundles of paper for sorting. Average load 57 percent of worker's body weight.

Aerated waters and beer bottling: Stacking crates to heights sometimes exceeding height of worker.

Woolen and worsted: Load of 180 to 190 pounds carried by two women.

I. Guard Against Injury to Physique in the Lifting of Heavy Weights

Much that may be said as to the proper methods of saving human energy in weight lifting applies to men as well as to women. Moreover, new applications of energy-saving lifting

² Great Britain. Industrial Fatigue Research Board, Report No. 44, *The Physique of Women in Industry*, 1927, pp. 20, 21, 118, 120, 121, 122, 125.

devices in industry are appearing constantly. However, there still are important physical factors that must be considered as applying particularly to women.

1. Limited strength of average woman precludes her employment in work that is excessively heavy.

It has been found that the strength of the average woman is a little more than half that of the average man. This has been substantiated again by recent reports, which continue to agree with quite early studies made in Great Britain and other European countries.

The International Labor Office accepts the results of Josephine Joteyko's researches in France. She found that tests gave the index of strength of women by the dynamometer as 570/1000 that of man; the index of resistance by the ergograph as 679/1000.³ Research by the British Industrial Fatigue Research Board substantiates these findings.⁴ Still earlier, in fact, more than 55 years ago, the Anthropological Institute of Great Britain and Ireland concluded that "the female differs from the male more conspicuously in strength than in any other particular." This conclusion was reached as a result of a study by a pioneer authority in this field. Sir Francis Galton, who made careful examination of almost 6,400 adults—4,726 men and 1,657 women.⁵

2. Heavy lifting especially affects women's physical structure.

Continual lifting of heavy loads results in deformities of bone structure that may have serious effects at childbirth. To quote from findings of the International Labor Office: ⁶

When women have habitually to carry heavy loads (e. g. in the country or mountainous districts), skeletal deformities are noted (of the vertebral column, lower limbs), alterations in the thoracic capacity and abdominal walls. Thus, for example, a broadening in the lumbar region of the spine in women who carry loads with crushing together of the vertebrae, bringing about diminution in height, deformity of the

³ Joteyko, Josephine, *La Fatigue et la Respiration Elementaire du Muscle*. Paris, 1896. Quoted in International Labor Office, *Occupation and Health*, Brochure No. 152, *Women's Work*, Geneva, 1929, p. 5.

⁴ Great Britain. Industrial Fatigue Research Board, *op. cit.*

⁵ Galton, Sir Francis. In *Journal of the Anthropological Institute of Great Britain and Ireland*, vol. XIV, February 1885, pp. 275, 278.

⁶ International Labor Office, *Occupation and Health*, *op. cit.*, p. 18.

pelvic basin with harmful effects on the development of pregnancy. Occupational cramp of the lateral muscles of the neck, pains of the brachial plexus, suboccipital nerves, movable kidneys, cardiac and thyroid hypertrophy, and so forth have been reported.

During pregnancy marked variations in certain physical factors should be considered in connection with weight lifting. Respiration, pulse rate, composition of the blood, and so forth, which even in the normal woman differ from those of man, show more marked variations during pregnancy. Pregnancy affects the work of the heart, increases the volume of the blood, the venous blood pressure and the heart rate and displaces the heart upward. There is noticeable diminution of the amplitude of the respiratory movements, and a diminution of muscular power.

Similarly, some authorities have found that lifting aggravates menstrual troubles. A Russian investigation showed menstrual troubles prevalent among 69.5 to 78 percent of the women who did heavy lifting and carrying, as against 26.5 to 39.2 percent among those in the occupations not requiring weight lifting. These findings were based on a study of 1,450 women employed in the peat, coal, and metallurgical industries. As a control, women in textile work and tramway conductors in Moscow were selected. The troubles referred to were most frequent for the younger groups—19 to 25 years. Inquiry showed the difficulties to be in direct proportion to the amount of occupational work.⁷

II. Analyze the Elements in Weight Lifting to Develop Methods of Saving Energy

The elements entering into weight lifting and carrying must be analyzed, and conditions and methods of work adapted to the worker, in order to promote efficiency in the employment of women in occupations of a heavy nature. To do this, scientific study should be given to the following factors, both separately and in combination:

⁷ Okunjeva, Steinbach, and Schtscheglowa, Moscow, 1927, quoted in International Labor Office, Occupation and Health, Brochure No. 152, Women's Work, Geneva, 1929, pp. 19-20; Moore and Barker, American Journal of Physiology, 1923, p. 405; Lee, Frederic S. The Human Machine and Industrial Efficiency, London, 1918, pp. 58 and 59.

1. Weights of units lifted.
2. Ratio of load to body weight.
3. Quantity lifted in a day.
4. Levels of lifting.
5. Compactness of load.
6. Distance and changes of level traversed in carrying load.
7. Interference of loads:
 - With normal gait.
 - With normal respiration.
 - With normal center of gravity.
 - With local movement, i. e., pressure on joints or bones or chafing of skin, and so forth.
8. Temperature and ventilation of workplace.
9. Method of lifting:
 - a. Wide stance results in unnecessary strain on groin.
 - b. Lifting with shoulders lower than hips results in unnecessary strain on back muscles.

III. Overcome the Dangers Involved in Lifting Heavy Weights by Using Certain Methods

The analysis in the preceding paragraphs points naturally to the means for the most efficient employment of women who must use heavy materials or carry loads in connection with their work.

1. Introduce lifting and conveying devices.

Mechanical devices for conveyance are now designed to meet almost every serious problem of weight lifting and carrying.

2. Provide efficient conditions for work.

The first step should be to plan the best possible arrangement of the work. Such arrangement should include⁸ (1) Reorganization of work lay-out to eliminate unnecessary lifting from one level to another. Vertical lifting is most costly in energy. Much lifting women do in feeding machines can be eliminated by having material on a level with the machine; (2) where lifting is necessary, arranging the work so that the worker does not have to stack above her height; (3) reorganization of work lay-out to shorten distances where carrying is

⁸ Weight Lifting by Industrial Workers. Home Office Safety Pamphlet No. 16, London, 1937, pp. 16, 17, 18, 19.

necessary; (4) temperature and ventilation standards are of particular importance, especially in heavy work where allowance should be made for loss of excess heat without undue chilling of body.



Figure 1.—Stacking above the worker's height strains the abdominal muscles.

3. Inform workers as to proper methods of lifting.

First instruction to the new employee is not sufficient. It must be repeated often.

(1) Women in particular should be informed as to methods that will prevent undue abdominal strain:

To keep the feet close to the object.

To use a narrow stance, the feet approximately 8 to 12 inches apart.

(2) Young girls need very special supervision and training in proper methods of lifting and carrying. Studies show that young girls may suffer seriously from lifting because of the possibility of malformation in bone development.

Young girls and boys lack the judgment to determine the unit of weight to be lifted. For example, investigation showed that a girl suffering from a strained back was carrying about two and a half times the normal load, though she had to walk only about 30 feet, because she was working on a bonus system and wished to save time. Other girls were doing the same thing.

(3) Some methods of lifting and of carrying loads are much more efficient and less tiring than others, and workers should have instruction in these methods. Back muscles are protected from strain and exert a minimum

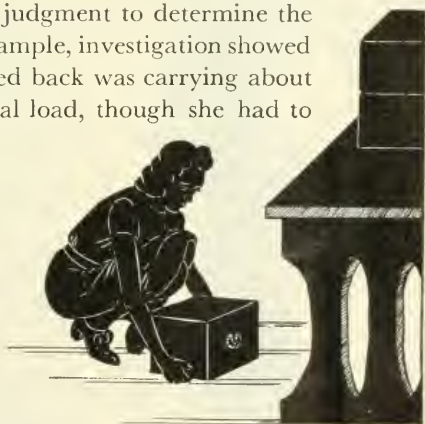


Figure 2.—With narrow stance and feet close to object worker bends her knees, putting brunt of strain on leg muscles rather than back. (By courtesy of National Safety Council, *Safety Fashions for Women in Industry*, p. 10.)

of effort when the worker bends her knees, crouches by the object, then lifts by straightening the knees and standing erect.

A frequent cause of back injury is improper lifting, that is, lifting with the back muscles rather than the leg muscles. A special survey by the New York Department of Labor found 72 cases of back injuries to women lifting heavy materials in industries of the State in 1930.⁹

IV. Train Workers To Use the Most Economical Methods of Carrying Weights

The major considerations in the carriage of weights are to secure the greatest economy of effort consistent with efficient work and to assure freedom from strain in carrying that must be continued for a considerable period.

1. Of the common methods of carrying by women in industry the most economical and comfortable is carriage on the shoulder. This method leaves free the lower limbs and does not result in fixation of the chest. (Note cover illustration.)

2. Tray carrying, a common job requirement for women in factories as well as in domestic work and other service occupations, is satisfactory only for short distances and irregular work. Local fatigue of arms and wrists is marked in continued transportation by this method. There may also be unpleasant pressure on abdomen or thighs. The tray may interfere seriously with normal gait and alter bodily posture to the point

of greatly increasing fatigue. Prolonged work with such loads may result in an habitual slouch. A load carried in front of the worker may interfere with vision of the floor surface and be a cause of falling. Heavy loads interfere with respiratory and circulatory functions. Where this type of carrying cannot be avoided, work periods should be appropriately short, or rest periods should be especially frequent.

3. Carrying bundles at the sides.



Figure 3.—Tray carrying is fatiguing to arms and may be a cause of falls.

⁹New York. Industrial Bulletin, April 1931, Compensated Back Injuries in New York State in 1930, pp. 222-224.

one in either hand, has the advantage of not disturbing body balance and not interfering with freedom of locomotion. However, marked local fatigue in hands and arms makes this an impractical method for *long continued* work. The drag on the shoulders interferes somewhat with respiration.



Figure 4.—Fatigue of hands and arms makes this an impractical method for continuous carrying.

4. Carrying on the hip requires bending of the body to the side to compensate for the lateral load. It interferes with normal walking and to some extent with natural breathing. Workers find it particularly tiring because of fatigue to the arm and rubbing of the hip. For certain purposes it may be an advantage, since the load can be taken up from a table with ease and it leaves one arm free.

Importance of rest periods in heavy occupations.

carrying are unavoidable, they should be maintained only for short periods.

Rest periods have been used with good results in heavy industries. They are essential because of the effect of lifting and carrying on respiration—the need for making up oxygen deficits. The length of such rests should be related to the duration of the periods of muscular work and its severity.

V. Protect the Health of Workers in Heavy Industries by Physical Examinations

During the World War good results in protecting the health of

If awkward postures in lifting and



Figure 5.—Interference with normal respiration and gait results from carrying weights on the hip.

women workers were obtained in some companies by pre-employment physical examinations. Where the employment rights of the worker are adequately protected, such examinations are advisable in heavy industries employing women.

In these examinations it is especially important that proper safeguards be assured for the worker. It is suggested that a plan similar to the Wisconsin one be put into effect for that purpose. This plan, adopted unanimously by representatives of organized labor, calls for examinations to be made by a physician selected by the employer. In the event of grievance the examined employee makes written complaint to the State Industrial Commission, an investigation is made, and if the grievance is justified the employer is required to have all further examinations made by another physician.¹⁰

The job should be fitted to the capacities of the individual. When a prospective worker gives a history suggesting disorders such as tumors or complications of pregnancy, examination should indicate whether carrying heavy materials may be suitable work. In every case the medical history should include a definite statement about the interval between a previous pregnancy and employment involving heavy lifting.

Of course, there are many disorders not peculiar to women that should preclude employment in heavy work and should be found in examination prior to employment. Such examination should weed out cases of heart disease, hypertension, obesity, neurocirculatory asthenia, tuberculosis, hernia, and other conditions.

VI. State Regulation of Weight Lifting Is More Effective Through the General Authority Granted Regulatory Bodies Than Through Specific Laws Fixing Maximum Weights

Though research has indicated that the most economical load is about 35 percent of body weight, there are so many variations both above and below this figure in individual cases that scientific establishment of a maximum that would

¹⁰ Wisconsin Industrial Commission. *Physical Examination of Industrial Workers*. Madison, Wis., 1939.

apply to all women is impossible. All the elements in weight lifting, such as compactness of load, levels of lifting, and so forth, must be considered as well as the physical characteristics of the individual who is to do the work.

In line with the method of protection through individual physical examination, State administrative bodies engaged in factory inspection should have authority to inspect and to advise and fix rules concerning conditions under which women work where the jobs involve heavy lifting.

The present State regulation is inadequate as it stands and serves chiefly to show that a need for protection of women has been recognized in six States. The following list summarizes existing regulations:

CALIFORNIA.—

1. Boxes, baskets, or other receptacles weighing with their contents *50 pounds or more* must be equipped with pulleys, casters, or other contrivances so they may be moved easily. (Any establishment employing women.)
2. Prohibits carrying any receptacle weighing with its contents *10 pounds or over* up or down any stairways that rise more than 5 feet from the base. (Any occupation, trade, or industry.)
3. Specifies *25 pounds as maximum* weight to be lifted or carried. (Any occupation, trade, or industry.)

MASSACHUSETTS.—Receptables weighing with their contents *75 pounds or more* must be equipped with contrivances enabling them to be moved without lifting. (Manufacturing and mechanical.)

OHIO.—Prohibits employment requiring frequent or repeated lifting of weights *in excess of 25 pounds*.

PENNSYLVANIA.—

1. Prohibits the lifting of *heavy* weights in explosive plants.
2. In welding and cutting operations, prohibits the lifting of material weighing *more than 15 pounds*.

UTAH.—Prohibits the lifting of burdens *in excess of 30 pounds* and carrying of *more than 15 pounds*. (Any establishment.)

WASHINGTON.—Prohibits lifting or carrying an *excessive* burden. (Manufacturing and mercantile.)



SAFETY CLOTHING FOR WOMEN IN INDUSTRY



WOMEN'S BUREAU
U. S. DEPARTMENT OF LABOR
SPECIAL BULLETIN No. 3

UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR



Safety Clothing for Women in Industry



SPECIAL BULLETIN NO. 3 OF THE WOMEN'S BUREAU

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,

Washington, May 23, 1941.

MADAM: I have the honor to transmit herewith a report on safety clothing for women workers, constituting the third in the series of special bulletins for the employment of women in the defense program.

The research and the writing of this report are the work of Margaret T. Mettert of the Bureau's Research Division.

Respectfully submitted.

MARY ANDERSON, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.



Courtesy American Mutual Liability Ins.

SAFETY CLOTHING FOR WOMEN IN INDUSTRY

The well-dressed woman in industry is a safe worker.
Clothing suitable to the job helps to avoid accidents.
Consider your feet first.
Wear your goggles; you can't replace an eye.
Wear a cap around moving machinery.
Work dress must suit the job to be safe.
Hand coverings can prevent skin infection and other injury.
Jewelry has no place in the factory.
Jobs with special dangers require special kinds of work clothing.



The Well-Dressed Woman in Industry is a Safe Worker

Safety clothing is designed for its attractiveness as well as its utility. It has become fashionable to dress and act so that accidents cannot happen. The girl who was afraid to carry a mirror lest she bring bad luck by breaking it has become the girl who knows that accidents have definite causes that can be avoided.

Clothing Suitable to the Job Helps to Avoid Accidents

Safety conventions have so far recognized the importance of safe clothing that they have included on their programs "fashion parades" (see frontispiece) of clothes designed especially for industrial women. Designers have in mind first safety, then convenience, wearability, comfort, cleanliness, and coolness. Attractiveness is given due consideration.

In selecting the material for uniforms it should be borne in mind that lightly starched fabrics are said to be more resistant to fire than are fabrics without starch, and that cellulose fabrics are more inflammable than cotton.

Safety clothing of various types has saved many thousands of workers from permanent crippling, disfigurement, or blindness, and many more from time lost from work and weeks of pain and illness.

Consider Your Feet First



Much fatigue and nervousness can be laid to badly fitting shoes. If you suffer from chronic fatigue or pain in your feet or in the muscles of your legs, ask the plant physician or nurse to advise you about the right kind of shoes to wear.

The correct shoe is long enough to place the ball of the foot in the tread of the shoe. The shoe allows for the natural spread of the toes, and fits snugly around the heel and instep. The heel is medium or low. The foot should always be measured with the standing weight placed on the measuring rule. The width should be fitted as carefully as the length. If deformities exist, exercise and mechanical devices will help.



High or run-down heels and thin or worn soles can be the direct cause of a fall. Well-fitting shoes with low heels and good soles can help to maintain footing on wet or slippery floors.

Falls are a major cause of women's injuries in industry; and they are especially serious, and result in much loss of time, among older women. Important causes of falls are wet, slippery floors and other evidences of poor factory housekeeping.

Some occupations require the wearing of safety shoes. Usually this is necessary if there is any danger of dropping heavy material. They can be as comfortable to wear and as attractive in appearance as an ordinary shoe. Such shoes with reinforced vamps have saved the loss of many toes. Several nationally known firms make them in all sizes for both men and women.

A specially designed foot protector for girls working in an optical-glass department is shown in figure 1. Made of chrome



Courtesy Pittsburgh Plate Glass Co.
Fig. 1.—Foot protector for girls
in glass manufacture.

leather, it has a piece of aluminum curved to fit the top of the foot. This is protection to the instep and top of the foot against falling glass or other falling objects. Where workers handle acids, or where conditions of great heat or moisture exist, wooden-soled shoes have been designed.

Women who work where explosives are manufactured or handled must wear shoes with sewed or wooden-pegged soles and heels with copper nails.

Wear Your Goggles—You Can't Replace an Eye

Wear an approved safety goggle in all work even remotely hazardous to your eyes. Accidental eye losses cost industry about 50 million dollars a year. They cost each worker who loses an eye his most precious possession, his sight. In New York alone almost 2,000 workers a year suffer eye injuries severe enough to make them eligible for compensation benefits. The most frequent cause is flying bodies. Other causes are tools or machine parts and splashing liquids. No one can tell when or how an eye accident will happen, and precautions should be taken.



Goggles are made in lightweight comfortable frames to wear by themselves or to fit over prescription glasses. There was a time when goggles were crude because a glass had not been produced that could stand heavy blows. Now glass can be so tempered that it will not shatter from any blow.

One company mounts on a bulletin board each pair of broken goggles and the object that broke them. Most of them come from men and women on jobs where the operation does not seem dangerous to the eyes. At least one large manufacturing concern requires goggles on every job, and visitors must put them on before entering the plant. This company saved itself \$116,000 in 2 years by this requirement. More important, it saved at least 100 eyes in a period of 10 years.

Among the jobs where goggles should be used are upholstering and sewing-machine and grinding operations. Goggles have saved more than one eye from broken needles in sewing occupations.

Wear a Cap Around Moving Machinery

In a Government arsenal employing many women the statement was made recently in answer to a Women's Bureau inquiry that a woman's hair is the greatest hazard in her employment on machinery. It is possible for the electrical attraction in moving



machinery to draw free hair into the machine (as a brush draws the hair after brushing), with very terrible results. For this reason a net should be worn or the hair should be cut short.

After years of experiment a company employing many women at work with revolving machines, and some in dusty operations, has decided on a uniform head covering, attractive in appearance as well as efficient in protection.

Two problems are present—confining the loose hair and preventing the possibility of revolving machinery catching in the hat and then in the hair. The distinctive features of the cap decided on are its height (the top does not touch the girl's hair) and its stiffness (it will not catch in revolving machinery). The head size is not small, so the hat would be thrown off if a girl did strike a piece of machinery. One girl, after wearing it at her machine operation for several days, remarked that she never before had realized how close she was working to her machine. The touch of the cap warned her she was too close.

Wearing a net to cover all the hair and hold it close to the head may be necessary where a girl has a lot of hair and the hat does not entirely cover it.

In this company the management arrived at the best solution to its hat problem by cooperating with the girl at the machine on questions of design, material, and comfort. Suggestions for such a uniform headdress can be given by the workers after the problem is outlined to them.

After careful consideration, the National Youth Administration has adopted a cap for its girl employees in factory work. This cap is visored to shade the eyes, is full so that all the hair may be covered. It is light, comfortable to wear, and washable.

In jobs where dust of any kind is present, and they are many, a well-fitting cap of closely woven, easily laundered material adds to comfort and health. The head covering in figure 2, designed to protect the hair and scalp from soda bicarbonate used in certain operations, is made of white batiste in the shape of a triangle and hemmed on all edges. Wrapped around the head and tied in front, it furnishes complete protection.



Courtesy Pittsburgh Plate Glass Co.

Fig. 2.—Head scarf for protection against harmful dusts.

Work Dress Must Suit the Job To Be Safe

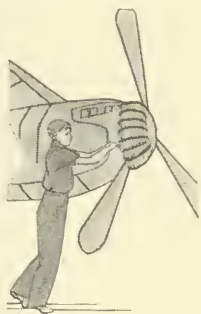
The time has passed when clothes selected for the Easter parade may eventually become work clothes, no matter how unsuitable. Tight-fitting garments cause strain that increases fatigue. Loose, full dress around moving machinery invites serious injury.

The girl working in airplane repair should wear slacks and blouse with short cuffless sleeves, or short-sleeved coveralls, to give freedom of movement without danger of catching on protruding equipment.

A similar uniform is necessary for the woman working near any moving machinery. It may be slacks and blouse, coveralls, or one of the various types of knicker suits that have been designed. The important things to remember when dressing for work at or near moving machinery are no loose sleeves, no full skirts, no ties or frills to catch in moving parts. (See frontispiece.) Both slacks and sleeves should be made without cuffs. Long sleeves rolled up are even more to be shunned than cuffs; the loose roll caught in a machine is most resistant to tearing and a serious arm injury may result. Pockets are to be considered, too, and no outside pocket at all is the safest rule. If an outside pocket is necessary, the Bureau of Home Economics advises a flat-seamed pocket or flat hip pocket.

On bench assembly work and other factory work without special hazards, either a simple well-fitting short-sleeved dress or slacks and blouse like that in figure 3 are appropriate. Freedom of movement spells comfort and efficiency in any work. Pleated backs in blouses and well-cut garments contribute to freedom.

A special dress for work is necessary, too, where there is dust or other soiling agent. Protecting the street clothes of men and women working with chlorinated naphthalene in the manufacture of insulated wires and electrical condensers was found essential to prevent cases of serious skin eruptions to young children and other members of the workers' families. Uniforms highly starched prevented absorption of the poison. In case of any



poisonous dusts, exposure time is doubled by carrying the poison around on street clothes.



Courtesy National Safety Council.

Fig. 3.—Well-cut slacks and blouse spell comfort and safety while working near machinery.

With some materials skin contact is known to be a more important cause of poisoning than respiration or digestive contact. Street clothes must never be contaminated by such materials.

For the comfort of women who must work in cold places a ski type of trousers has been devised of warm material, fitting well about the ankles and topped by a closely knitted sweater.

Hand Coverings Can Prevent Skin Infection and Other Injury

Work gloves must be chosen for the job in which they are to be used. They must be comfortable and durable, as well as protective. Gloves are more than a decorative accessory for the woman in industrial work. Protection of the fingers and hands can go a long way in cutting down the number of injuries to women. Hands and fingers are used in practically every operation connected with earning a living. Even a slight accident to the fingers can completely disable a worker for the occupation that requires nimble fingers and accurate handling of small parts. According to some State reports, approximately half of all occupational injuries to women affect hands and fingers. Gloves can furnish adequate protection in many cases.



Much assembly work requires handling sharp or rough objects. An ordinary durable glove of inexpensive type will mean comfort and safety in this kind of work. Where the parts handled are small, rubber finger guards may be sufficient. Adhesive tape so often seen around the workers' fingers is a poor substitute, since its constant use has a harmful effect on the skin and may even be the cause of a definite irritation.

An operator handling sharp particles wears hand protectors of leather such as goatskin to protect her hands from the minute chips. Rubber finger guards are worn to make it easy to handle the small parts.

Figure 4 illustrates the need for gloves in another operation at which many women work—inspection of tin plate.

Hands are most often affected by the skin diseases caused by a great variety of substances used in industry. Gloves made of fabrics that absorb moisture may become so saturated with the harmful substance that they are worse than no gloves.

The United States Public Health Service has studied fabrics to find satisfactory protection against such harmful materials. As a result they recommend as the most suitable protection against skin irritants Pliofilm, Vinylite, and Koroseal. These materials prevent the irritants from coming in contact with the skin and they have the advantage of not being inflammable.



Courtesy Carnegie-Illinois Steel Corp.

Fig. 4.—Leather gloves and apron used in tin-plate inspection.

They are easily washed with soap and water. With ordinary care they will last for months in rough occupations. In gloves they have an elasticity like rubber, without the clammy feeling of rubber. They can be used where rubber would be attacked by the chemicals used, or where the worker is allergic to rubber itself. Rubber has other disadvantages, aside from its uncomfortable feeling; it is heavy, tears easily, and may cause dermatitis in susceptible workers.

Protective hoods, sleeves, gloves, and aprons of this type of material may be worn. Sleeves should fit snugly over the gloves so that wrists as well as hands are protected. Such protection is especially helpful where objects are lifted above shoulder level and may run down onto the forearm, or where material may collect on the edge of the glove and be rubbed into the wrist.

Gloves used in working should be considered carefully from the point of view of comfort. Leather gloves particularly should be checked for heavy rough seams or rough edges. Continual irritation of the skin opens the way for infections.

Gloves are used more than any other single item of protective clothing, but around moving machinery a glove is as taboo as a necklace or a ring. Serious accidents have been caused by wearing gloves while operating drills, punch presses, lathes, and other machines. It is a temptation to wear gloves because of the frequent contact with oil and greasy objects. Substitute protection is available for such occupations in the creams and varnishes on the market. No one cream or varnish is suitable protection for all substances, and the best method is to use the specific type of protection advised for each general group of irritants. In many cases pure lanolin or a cream with a lanolin base is adequate. Examples of mixtures requiring special protection include chlorinated solvents, gasoline, chemical mixtures; turpentine; alcohol; turpentine and hydrosolvent mixtures. For such mixtures advice about the protection to use should be given by the plant physician.

An important consideration when a cream or varnish is used for protective covering is that it may be washed off with a suitable soap cleanser.

Jewelry Has No Place in the Factory

No jewelry is suitable for factory wear. The useful wrist watch, the frivolous earrings, necklaces, rings, and bracelets, though attractive in themselves, have no place in the factory. Some companies make definite rules that no visible jewelry may be worn.

Jobs With Special Dangers Require Special Kinds of Work Clothing

Safety clothing now provides protection against almost any hazard in any type of work. The worker dressed specifically for her job is safety conscious and less likely to have an accident.

The following list indicates the particular personal equipment necessary in cases of exposure to the hazards listed:

<i>If the hazard is—</i>	<i>The worker should wear ¹—</i>
Corrosive substances, alkalis, or acids.	Coat or apron of rubber; rubber or chrome leather shoes with wooden soles and, in case of corrosives, with sewed sole; arm and leg protectors of glass-fiber cloth; fiber-metal alloy, or rubber; gloves of rubber or rubberized cotton; rubber hat or hood.
Cuts.....	Chrome leather is advised for coat, apron, shoes, leg and arm protectors, and gloves. Metal mesh may be necessary in apron and in arm and leg guards, and gloves may be of canvas, metal mesh, or cotton. Head covering may be of plastic composition, duralumin, or vulcanized fiber.
Dermatitis.....	Clothing of rubber. May necessitate coat or apron, shoes, arm protectors, gloves.
Falling objects.....	Shoes with reinforced toes; arm and leg protectors of fiber-metal alloy; head covering of plastic composition, duralumin, or vulcanized fiber.
Falls or slips.....	Shoes with nonskid soles.
Flying particles.....	Same as for punctures and blows (which see) with the exception that shoes with reinforced toes and metal-mesh or cotton gloves are not necessary, and in some cases an asbestos coat or apron would be preferable to one of leather.

¹ Where rubber is listed, one of the substitutes such as discussed on page 7 may be used.

Hot liquids	Apron or coat of chrome leather; shoes opening at the side and made of chrome leather; leg and arm protectors of fireproofed duck; asbestos or chrome leather gloves; rubber hat or hood.
Hot materials	Asbestos coat or apron; wooden-soled, chrome leather shoes without front lacing; asbestos arm or leg protectors, gloves, and hat or hood.
Moisture	Rubber coat or apron; chrome leather or rubber shoes; arm and leg protectors of chrome leather or rubber; gloves of rubber or rubberized cotton; hat or hood of rubber.
Punctures and blows; rough, sharp, objects.	Chrome leather shoes with reinforced toes; coat or apron of chrome leather or wire mesh; leg and arm protectors of leather or fiber-metal alloy; gloves may be chrome leather, metal mesh, or cotton; necessary head covering of plastic composition, duralumin, or vulcanized fiber.
Spark explosion	Shoes with sewed or wood-pegged soles, copper-nailed heels.

Leg protectors include spats, leggings, pants, knee pads.

Arm protectors include sleeve and wrist protectors.

Gloves include also mittens, hand pads, finger guards.

Hats include hoods.

(Material in this list adapted from chart by the American Mutual Liability Insurance Co.)

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Night Work for Women and Shift Rotation in War Plants

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Night Work in Wartime

The undesirability of night work has long been recognized by workers and employers alike. Workers object to it because it requires them to live under abnormal conditions. Either they are reduced to a dreary routine of sleeping by day when the rest of the world is active or they are compelled to go without sufficient rest in order to have some part in community life. Employers also are opposed to night work because they find that in the long run workers on the night shift are less alert, their morale is lower, accidents are more frequent, and productivity suffers. War production necessitates 24-hour operation of machinery. Hence many war industries now require a full force of workers on the night shift—in general, some part of the period between 10 p. m. and 8 a. m., with exact hours varying from plant to plant.

The Women's Bureau recommends that night work not be used except as the lesser of two evils in an emergency—the other being long overtime hours for day shifts. Further, all possible measures should be taken to moderate the dangers and difficulties of night work.

Reducing Health Dangers of Night Work

To reduce the dangers of night work to the worker's health, the Women's Bureau recommends the following action—

A. By Management

- (1) Making sure the individual is able to work on the night shift.

Not all workers are able to take their turns at night-shift work throughout extended periods. While a shift arrangement involving

night work is in progress, careful study should be made of effects on the individual, and those not suited to night work should be relieved of the night shift.

No employee should work on a night shift if there is a history of anemia, respiratory disease, digestive disease, or nervous disorder.

Women with home responsibilities should not work on the night shift except in a short and definitely limited emergency. It is inevitable that household duties during the day plus work at night will cause chronic fatigue.

Loss of regular sleep is more serious for young workers who have not attained full growth. Hence, young girls should not be placed on the night shift.

- (2) Providing time and facilities for a hot and nutritious meal.
- (3) Preserving the week-end rest.
- (4) Assuring effective health supervision for night workers.
- (5) Providing well-trained supervisors for night workers.
- (6) Providing good lighting, which lessens fatigue and the likelihood of accidents.
- (7) Giving attention to workers' transportation problems.
- (8) Paying a differential rate for work at night, thus providing some compensation for the additional strain of night work.

B. By Workers

- (1) Spending 7 or 8 continuous hours in bed.
- (2) Eating a hot meal at lunchtime on the night shift.
- (3) Exercising daily in the open air.
- (4) Reporting health disturbances to plant medical department.

Rotation of Shifts: How Frequent?

To distribute the burden of night work and equalize employment conditions, some employers have adopted the practice of rotating shifts, thus giving each worker a share in the advantages of day work and the disadvantages of night work. There is considerable disagreement as to the frequency with which shifts should be rotated. Decision as to the best periods for rotation of shifts can be based on the experience of workers, on the available results of tests, and on the testimony of various authorities on workers' health and capacity to maintain output.

Women workers themselves, speaking from experience, object to frequent change of shifts because it upsets their eating and sleeping schedules. Women with family responsibilities find it hard to arrange for the care of their families and children, harder still to get someone to do this. On the other hand, there is objection to permanent night schedules because the workers seldom get sufficient sleep during the day and health and efficiency are seriously undermined.

The Women's Bureau finds, from testimony both of working women with night-work experience and of health authorities, that shifts should be rotated not so often as 2 or 3 weeks, and not at intervals so long as to develop chronic fatigue of the workers. Periods at which fatigue shows itself most severely have been found to be in the first days after going on night work and again at a time about a month or 6 weeks later. It is difficult to suggest an invariable rule, since conditions vary widely, and authorities of today differ in their recommendations. The one point of agreement is as to the disadvantages of night work.

Rotation Should Not Be Too Frequent

If shifts are too frequent, rotation causes excessive fatigue in both day and night workers, and production standards cannot be kept up. Dr. Thomas Parran, Surgeon General of the United States Public Health Service, made the following statement in January 1942:

Workers changing over from day to night shift every 2 or 3 weeks find it difficult to adjust their eating and sleeping habits. In plants operating on a 24-hour schedule, shifts should not be rotated more often than 2 or 3 months.

Dr. Nathaniel Kleitman, professor of physiology at the University of Chicago, states that frequent rotation affects a worker's efficiency to such an extent that it lowers his productivity. This is based on numerous experiments on the adaptability of the individual to living conditions which reverse the normal cycle of day and night. Dr. Kleitman recommends that rotation be no more frequent than every 3 or 4 months. On the basis of his experiments he states that the best practice from the point of view of output would be the continuous shift system with no rotation.

Dr. Howard E. Collier, for more than a decade a certifying factory surgeon in Redditch, England, and more recently a reader in industrial hygiene and medicine at the University of Birmingham, England, recognizes that it takes a long period to reverse the physiological functions. He therefore believes that shifts should not be made frequently, and says this about weekly changes:

Our own observation leads us to the conclusion that short shift changes produce fatigue conditions among workers engaged on both the night and day shifts. After a few months of alternate shifts, the whole personnel becomes weary and exhausted both physically and mentally.

Dr. Collier recommends a continuous period of 4 to 6 weeks as a compromise between night shifts too long continued and very frequent shift-changes.

Night Work Should Not Be Continuous for the Worker

While continuous night work would allow time for the individual to adjust to the change from his normal cycle of day and night, the evidence is that output decreases and chronic fatigue develops. Most important to the health of the night worker is to adapt to day-sleeping rather than night-sleeping. Adaptation to day-sleeping is very difficult under the living conditions of industrial workers. Few can sleep well in a noisy house or street. Change to the day shift is necessary to repair the results of lack of sleep during the night-work period.

Dr. H. M. Vernon, formerly investigator for the British Health of Munition Workers Committee and for the British Industrial Health Research Board, and for long the most outstanding authority on fatigue in industry, believes that *under industrial conditions* it is unlikely that workers ever can adjust well to working at night and sleeping during the day. He says:

During their periods of night work their hours of sleep are almost inevitably interrupted by the daytime activities of the other dwellers in their homes, and at the week-ends, when they are free from night work for one or two nights, they more or less observe daytime conditions.

Dr. Vernon believes night work in any case to be disadvantageous, and states that where night work is continuous absenteeism among women is greater and output is decreased. He has recently requoted as a present recommendation the conclusion of the British Health of Munition Workers Committee, based on experience in the first World War, "that continuous night work is productive of definitely less output than is the discontinuous system."

Recommendations

1. Night work should be used only as an emergency measure.
2. When night work is necessary, all possible measures should be taken to protect the workers' health.
3. In regard to the rotation of shifts, change should be made (1) not too frequently, (2) not at intervals so long as to develop chronic fatigue.

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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR

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Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs



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HAZARDS TO WOMEN EMPLOYED IN WAR PLANTS ON ABRASIVE-WHEEL JOBS

- I. Recommendations for the employment of women.
- II. Brief description of operations.
- III. Hazards and preventive methods.
 - Dust hazards.
 - Dust prevention.
 - Oil dermatitis.
 - Repetitive motion.
 - Accident hazards.
- IV. Sources of information.



I. Recommendations for the Employment of Women

If intelligent precautions are taken, grinding and polishing operations can be done safely. Protective methods are well developed and the problem becomes one of seeing that these are used. There need be no escape of dust into the workroom. Protective measures can greatly reduce the danger of dermatitis and of accident. There is no reason why women as well as men should not work on wheels properly installed, maintained, and inspected. The American Standards Association has published an acceptable safety code for the protection of workers in these operations. Several States have excellent codes for dust collection and safe operation of abrasive wheels.

Because women have special health and injury problems, the Women's Bureau urges that employers be required to show that they maintain healthful conditions of employment before they hire women. The following paragraphs summarize briefly the effects on the health of women as compared to men of employment in grinding, polishing, and buffing.

- (1) Inhalation of dust from abrasive wheels is very serious for either men or women. Some industrial hygienists believe that the excessive tuberculosis rate among women 15 to 24 years of age indicates a special need for protection from dust ¹ (1).
- (2) Some authorities believe women are more likely than men to be affected by dermatitis on grinding where oil solutions are used.
- (3) Long and loose hair as worn by women workers is a definite accident hazard.

¹ References are to sources of information, last page.

- (4) Other dangers, from cuts, abrasions, flying particles, broken wheels, and repetitive motion, are no more serious for women than for men. It should be kept in mind, however, that with any injury women have special problems. Their compensation is less than that paid for injury of similar severity to a man, because the wages of women are lower. Injury to the wage earner is a very serious matter to the household but it is even more serious when the wage earner is also homemaker.

II. Brief Description of Operations

Grinding, polishing, and buffing operations are similar in type. When a small amount of metal must be removed from an article to bring it to correct measurement, it usually is ground; when a smooth surface or special finish is desired, it is polished and perhaps buffed. Metal grinding usually is performed with emery wheels. Sometimes grinding is done by belts covered with emery or other exceedingly hard abrasive substance. Carborundum and corundum chiefly are used.

Grinding is accomplished by the revolution of the abrasive wheel against the object from which metal is to be ground. Danger to the worker from the metallic dust thrown off can be prevented by wet grinding, in which the cutting is done under a stream of water or oil to prevent overheating and to lessen the dust. However, the wet process cannot be used for all types of grinding. Where dry grinding is done, standards for dust exhaust systems as provided for in various State codes, such as that of Illinois (cited on p. 4), are satisfactory.

Polishing is done on emery wheels or on spindles covered with a composition of abrasive material, to give a smooth surface to castings. Buffing is a follow-up process to gloss the metal parts still further after they have been polished. Buffing usually is done with wheels of tightly compressed fabrics, sometimes infiltrated with fine abrasive powders.

III. Hazards and Preventive Methods

Dust Hazards.

In both grinding and polishing, dust is a chief health problem. The metallic dusts are very harmful, since they are extremely hard, crystalline, and very fine, and may be poisonous.

A Women's Bureau study as long ago as 1926 found that though dust was considerable in some plants where women were employed, in other plants effective exhaust systems and good cleaning methods kept the dust out of the atmosphere.

Investigation by the Women's Bureau of occupations suitable for women in the war production of 1941 and 1942 revealed that in metal plants with good dust-collection methods and adequate protection from injury the occupations of grinding, polishing, and buffing may be classed among the most desirable jobs for women.

In 1911 the Ohio Division of Occupational Diseases, under the direction of Dr. Emery R. Hayhurst, made a study of health hazards in Ohio. In metal grinding and in polishing and buffing operations an excessive tuberculosis death rate was found. The following conclusions were reached (2):

Liability to industrial *poisoning* existed in 38 of the plants visited, and especially so in 21. This was due in about half of the instances to the presence of other processes; in the balance it was due to working upon poisonous metals and alloys, particularly those composed of lead, or rich in lead component. The various poisons mentioned to which polishers and buffers were found subjected were lead, potassium cyanid, nitric acid fumes, phenol, amyl acetate, benzine, alum, crude paraffin, and "metal dust," furnace gas fumes, brass fumes, plating fumes, and acid-dipping fumes.

One point which particularly impressed our investigators was that where blower systems were installed they were often very inefficient at the time of inspection and were said to be so most of the time. There appears to be but one way of getting around this—to make it somebody's business in each such room to see that such systems are in working order and to provide for compensation for this purpose. A metal or wooden "chest-protector" prevents harmful pressure against the person. Especially should medical supervision be adopted for this class of workers, as they are at a process which appears to take about 20 or 25 years off their lives. (See also page 5, Repetitive Motion.)

In spite of the serious hazards in the industry, Dr. Hayhurst found at that early date that some plants were adequately guarding their employees.

Dust Prevention.

In all dry grinding, polishing, and buffing operations local exhaust ventilation is a necessity. Specifications for dust

exhaust systems have been put in force in several States. In the Illinois rules relating to this problem, the following exhaust-system designs are required (3):

All branch pipes shall enter the header pipe at an angle of 45° or less. All bends, turns or elbows used in exhaust pipes shall be made with a throat radius of two pipe diameters except greater or smaller throat radii may be used to clear obstructions.

All branch pipes shall connect with a header pipe. The area of the header pipe at any point shall not be less than the combined areas of the branch pipes joining it between such point and the small end of the header. Such header pipes shall be connected to an exhaust fan to produce a minimum air velocity in the branch pipes of 4,500 feet per minute or such greater air velocity reasonably required to remove dusts, vapors, gases or fumes generated if same constitute a hazard to the health of employees. Where cradles are used for handling the parts to be ground, polished or buffed, or where swing grinders are used, and large partial enclosures to house the complete operation are required, the opening in such enclosures shall have a minimum average air velocity of 100 feet per minute and shall be connected to branch pipes of an exhaust system of such area as to produce a minimum air velocity of 2,000 feet per minute in the branch pipes.

Hoods must be so connected with exhaust systems that all dust will be drawn into them and none will reach the operator's breathing zone.

The size of suction pipes necessarily varies with the diameter of the grinding wheel. Excepting swing-frame and portable grinding machines, the American Standards code for safe operation of abrasive wheels requires these dimensions (4):

<i>Diameter of wheel</i>	<i>Minimum diameter of branch pipe (inches)</i>
6 inches or less.....	3
7 to 16 inches.....	4
17 to 24 inches.....	5
25 to 30 inches.....	6

Some modification of these dimensions is allowable in the case of narrow wheels used for light work where little dust is generated and a smaller pipe will remove it.

Testing of exhaust systems to check on the effective removal of dust is quite as important as correct installation. The Illinois regulations require tests using a Pitot tube (3):

A Pitot tube shall be used to measure the velocity pressure of the air flow in the branch pipes and such measurements must be taken in the

center of a straight portion of the branch pipe near the hood at a point that is 10 pipe diameters away from an elbow or bend or as near this location as the branch pipe installation will permit and the velocity pressure shall not be less than 1.53 inches of water for 4,500 foot velocity per minute and 0.31 inches of water for 2,000 foot velocity per minute as indicated in a U-shaped tube.

All tests for air velocity shall be made with all branch pipes and hoods of the exhaust system fully open at the same time.

Oil Dermatitis.

Oil used in wet grinding may cause dermatitis, particularly of the hands, arms, and thighs. Some authorities say that women are especially susceptible to such infection because their skin is tender. The dermatitis is an acne-form eruption of the exposed skin, or a folliculitis involving the hair follicles, or eczematoid dermatitis. In the first two it is caused by mechanical plugging up of the pores, followed by infection. Bits of metal in the oil may wound the skin and become infected. The Women's Bureau is studying dermatitis among women.

The United States Public Health Service advises protective ointments, such as lanolin and castor oil, rubbed into the skin before work. This prevents contact of the oil with the skin, and workers wash off the ointment before leaving work, thus removing the irritant too. Clean work clothes, clean wiping cloths, and good washing facilities are important. (5) Dermatitis of the thighs is easily prevented by wearing impervious clothing that prevents the oil reaching the undergarments.

Repetitive Motion.

Faulty posture and constant pressure of the body against objects present health problems. Abrasive-wheel operation may be light and not fatiguing, but in many cases it is necessary to press the part to be ground heavily against the wheel or to use a special motion to turn the piece. In the Women's Bureau study in 1926, several women complained of fatigue of their wrists caused by constant repetition of a special motion required to bring the surface against the polishing wheel. One girl had her arm bandaged to relieve the swollen wrist.

Variation of occupation, provision of good-posture seats, and efficient motions in handling work help to prevent fatigue from repeated motion. Rest periods should be provided.

Accident Hazards.

On some operations there is danger of getting the hands cut or scraped on the wheel. In buffing or polishing small pieces it is difficult to protect the nails and finger tips. Finger guards should be used in such work.

More serious, though less frequent, is the possibility of loose hair catching on wheels operating at high speed. Suitable headwear, covering all the hair but standing up from the head so that machinery cannot catch in the cap and then in the hair, should be provided and its wearing enforced.

In the operation of grinding wheels at high speed there is the possibility of the wheel breaking and of pieces flying out, with injury to the worker. The best protection is a hood for the wheel, of good design and construction. Other important preventive methods include careful storage and correct mounting. The technical factors involved in such protection are covered in detail in the safety code for abrasive wheels approved by the American Standards Association. See (4).

Goggles are considered the best eye protection and should be provided for all employees on grinding wheels unless the danger of flying particles of metal is effectually removed.

IV. Sources of Information

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- (2) Hayhurst, E. R. Industrial Health Hazards and Occupational Disease in Ohio. Issued by Ohio State Board of Health. February 1915. p. 144.
- (3) Illinois Department of Labor. Industrial Commission. Rules Relating to Removal of Dusts, Vapors, Fumes, or Gases from Grinding, Polishing, and Buffing Operations . . . effective July 15, 1938, pp. 11, 14.
- (4) American Engineering Standards. Safety Code for the Use, Care, and Protection of Abrasive Wheels. Approved by the American Standards Association. New York. 1935. p. 20.
- (5) Federal Security Agency. United States Public Health Service. Public Health Bul. 249. Louis Schwartz. Skin Hazards in American Industry, pt. III, 1939. p. 51.

* 9331.4 A25

Safety Caps for Women in War Factories

The public has been shocked and employers have been equally distressed by serious injuries to women war workers occurring because safety caps were not worn or hair was not tucked into the cap.

These injuries can be prevented!

Wear safety caps when the job requires!

Tuck hair fully under the cap!



WOMEN'S BUREAU
U. S. DEPARTMENT OF LABOR
Special Bulletin No. 9
October 1942

JAN 4 1943

WHY WEAR SAFETY CAPS?

1. To Prevent Scalping Injuries

Feminine hairdress and machinery often combine badly. Pain, costly medical care, and permanent disfigurement result when hair tangles in machinery. The following happened to women in war factories:

An operator of a spinning machine bent over. Her hair caught in the machine. She was totally disabled for 16 weeks as a result of her injury, and for 45 weeks longer was partially disabled. The injury cost \$570 in compensation.

In an ordnance factory, a woman operating a barrel-turning machine leaned too close and her hair was pulled around the barrel. A large clump of hair was torn from her head. She spent days in the hospital recovering from the wound and the shock.

Such examples could be repeated many times. *Every such accident could have been prevented.*

2. To Prevent Skin Infections

Personal cleanliness ranks high in preventing skin infections. Face, hands, and arms can be washed several times a day, but hair cannot. *Hair tucked under a cap will keep clean.* The girl in the example following learned this the hard way, by experience.

A girl in a war production plant suffered a face dermatitis from dirt and grease deposited on her pillow from her hair.

3. To Prevent Serious Burns

Holding a welding torch while brushing back locks from your forehead is dangerous.

A girl spot welder in a lamp factory learned this when sparks ignited her hair. She was lucky to escape serious burns.

Keep the Cap On!

WHO SHOULD WEAR CAPS?

Machine Operators.—Every woman working on or near machinery should wear complete hair covering. Hair will entwine in moving machine parts and cannot be removed before it is pulled out by the roots, sometimes tearing the scalp.

Welders.—Electric and acetylene welders should wear fire-proof hair covering.

Workers Exposed to Dust or Fumes.—Need covering to protect hair and to prevent carrying toxic material on hair.

Workers Exposed to Oils or Grease.—Need covering to protect hair and to aid in preventing skin infections.

WHAT IS A GOOD CAP?

A good cap is safe, comfortable, attractive.

1. *Safety.*—For a worker exposed to machines, a cap must completely cover the hair. Stray curls or wisps of hair can be caught in a machine; partial scalping may result. Headsizes should be so generous that hat will be thrown off if it strikes a machine part. Height and stiffness are essential. Height warns the girl that her head is dangerously near machinery. Stiffness guarantees that the cap will not catch in machines. A hairnet alone is not safe; worn fully under a cap, it may help.

Machine operators should not wear a turban or bandanna. It may expose hair, or machines may catch loose ends of cloth. Closely woven washable turbans are good for dusty jobs with no machine danger.

2. *Comfort.*—Caps must be comfortable and light in weight. This helps in enforcing the wearing of caps.

3. *Attractiveness.*—Appearance is important to women. If a cap looks well, women will want to wear it.

ENFORCE USE OF SAFETY CAPS!

Introducing Safety Caps.—A sudden order from the office that all women wear safety hats is not the best way. Better is an experimental period, for women workers to suggest improvements and safety officers to observe. In a company using this method, girls were surprised to find the caps warned them how close to the machines they were.

Enforcing Safety Rules.—Half the enforcement battle is won if safety caps are comfortable and attractive and are introduced by wise methods. Persuasion is better than compulsion. Suitable caps, good supervision, good factory morale, are basic in insuring compliance. In many shops all women wear caps without question.

Work of a woman supervisor or personnel manager often secures cap-wearing. Women resent admonitions about clothing from men. A matron in charge of women's locker rooms as each shift begins can check cap-wearing.

Individual backsliders may appear, and the trouble may spread. For new workers, cap-wearing should be made a condition of employment. An employee who repeatedly breaks the rules must be disciplined wisely, possibly in extreme cases suspended.

Continuing Safety Education.—Vigilance must not be relaxed. Regular safety meetings, especially for women, should be held. These can repeat at intervals reasons for keeping hair covered, and shop rules as to this. Photographs, motion pictures, and posters showing correct cap-wearing help. Gruesome propaganda is a mistake in safety education and is not effective.

Guard Machines Completely. Safety Caps Are No Substitute for Guarding

SAFETY CAPS

FOR *Women* MACHINE OPERATORS



Industrial accidents are one of the potential bottlenecks in war production. Women war workers can help to eliminate this bottleneck by wearing safety clothing. Here are 12 work caps for women on machine operations—all of which meet most of the standards for protection.



1 Washable plastic mesh, with high crown and broad visor. Cool and lightweight.



2 Rayon jersey cap worn with visored helmet in clear plastic; also in dark green to protect from light glare.



3 Buckram with stiff crown and visor. Adjustable by means of metal clasps. Designed for large machine company.



4 Cotton cloth with stitched and stiffened visor and crown front. Net panel for ventilation runs down back of crown and snood. Tape ties for drawstring. Washable.



5 Twill or hopsacking. Washable and lightweight. Ventilated. Drawstring for adjustability.



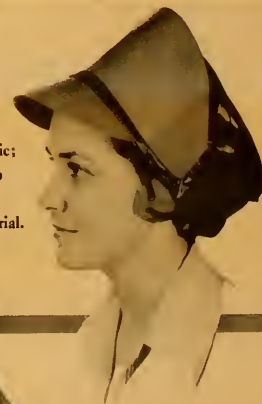
6 Peaked cap with drawstring crown. Lightweight cotton similar to hopsacking. Washable. Also in twill and poplin.



7 Washable sail-duck, drawstring snood and stitched visor. Hoop of stiff material inserted in crown and removable when cap itself is laundered.



8 Visor and crown guard of plastic; snood and crown top of oil-, dust-, and moisture-proof material. Ear protectors are a special feature.



9 Net crown and snood, ventilated over visor. Washable, cool, and adjustable.



10 Snood of knitted rayon, with felt half crown and visor. Perforations in front of crown allow ventilation. Elastic cord in snood.



11 Cotton mesh, drawstring and visor. Cool, washable. Designed by safety division of airplane engine firm.



12 Plastic coated rayon with net snood and cellulose visor. Protects from grease and oil. Washable.



★ Write to the Women's Bureau, U.S. Department of Labor, for manufacturers' names and prices of bulk lots

**IT IS SUGGESTED THAT THIS FOLDER BE
POSTED ON FACTORY BULLETIN BOARDS
FOR THE INSTRUCTION OF WORKERS**

The Women's Bureau of the United States Department of Labor has published three bulletins dealing with work clothing for women. These bulletins, as listed below, may be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

EFFECTIVE INDUSTRIAL USE OF WOMEN IN THE DEFENSE PROGRAM
Special Bulletin No. 1, 1940, 10 cents

SAFETY CLOTHING FOR WOMEN IN INDUSTRY
Special Bulletin No. 3, 1941, 10 cents

SAFETY CAPS FOR WOMEN IN WAR FACTORIES
Special Bulletin No. 9, 1942, 5 cents

UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR



Women's Effective War Work Requires Good Posture

By

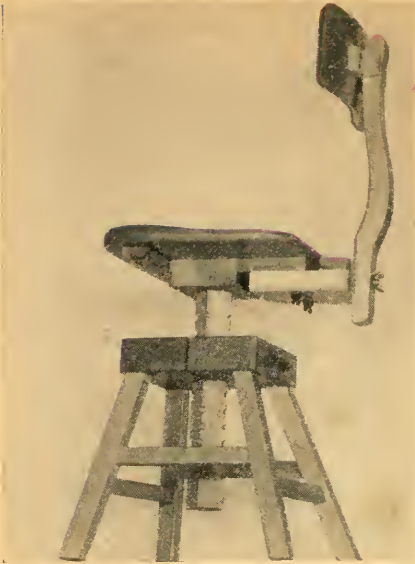
MARGARET T. METTERT



SPECIAL BULLETIN NO. 10 OF THE WOMEN'S BUREAU

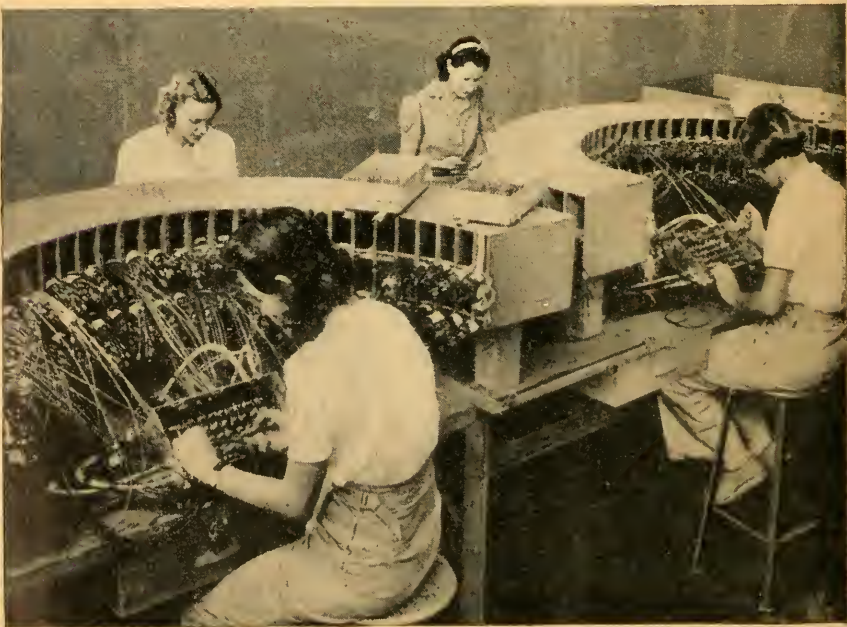
UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1943

JUN 18 1943



—Courtesy Koenig Co.

GOOD INDUSTRIAL CHAIRS; ADJUSTABLE, THOUGH USING ALMOST NO METAL IN ACCORDANCE WITH W. P. B. REGULATION.



POOR SEATING; NONADJUSTABLE; NO BACK SUPPORT; NO LEG ROOM.

Women's Effective War Work Requires Good Posture

Provide seats that meet good-posture requirements.

Study the job to adapt it to good-posture needs.

Instruct the worker in good posture.

Good posture is dependent on hygienic factory conditions.

The properly seated worker is a more efficient worker.

Seating is especially important to the health of women.

State regulations.

References on industrial seating and posture.



Wise management provides working conditions that will reduce fatigue to a minimum and keep workers as close as possible to peak production throughout the day. Adequate seating is one of the conditions that a wise management will provide. Constant standing is a spendthrift of energy. Lack of seats or uncomfortable seating impairs production. It has been proved time and again that much of the burden of fatigue depends on the posture of the worker. Not only do waste effort and increased spoilage result from excessive standing or improper seats, but tired workers are more likely to have accidents. Even with today's restrictions on use of metal, suitable seats, largely of wood, can be provided.

Alternating from sitting to standing diminishes fatigue. No matter how correct the working position is it becomes irksome and tiresome after a protracted period. Constant standing is harmful but constant sitting may be just as bad.

By the use of adjustable seats, many jobs can be arranged for either sitting or standing. The work level should be constructed at average standing height, and each worker's chair should be adjusted to a height at which her elbows are the same distance from the floor whether sitting or standing.

There must be no obstruction under bench or machine to interfere with the worker's knees when seated.

If careful analysis of the job shows that posture variation by use of alternate sitting and standing is not possible, rest periods should be introduced to vary posture. If the job must be a standing one proper seating facilities should be available during rest periods, and if the job requires continuous sitting it should be possible for workers to walk around during the rest period.

Provide Seats That Meet Good-Posture Requirements.

From a physiological point of view the correct sitting posture is that in which the weight of the body is carried on the bones that form the base of the pelvis and the body is held erect by muscular action that prevents sagging at the waist. Circulation is aided by keeping an angle greater than a right angle at the knee joints. Stooping should be reduced to a minimum.

To conform to these physiological needs the following are essentials in industrial seating:

It is necessary that the seat be adjustable to the height of the machine or bench.

The seat should be 16 to 16½ inches wide and slightly saddle-shaped.

The seat should not be too deep. Depth should be sufficient for comfort without constricting blood vessels under the knees. From 12½ to 13½ inches from front to back is adequate.

The back of the seat should support the lumbar region—the small of the back where fatigue first is noticeable. The back of the seat should be adjustable to the individual.

Footrests with a firm nonslip surface should be provided.

Seats that can be easily moved out of the way when the worker stands are desirable.

When employers say that workers prefer to stand, it is certain that seats have not been correctly adapted to the job. Common faults of industrial seating include (1) No back support; (2) fixed seats too high or too low; (3) seats poorly shaped and hence uncomfortable; (4) benches or tables too low to allow for the worker's knees while at correct sitting height; (5) no footrest; (6) too little room between seats.

Study the Job to Adapt It to Good-Posture Needs.

A job analysis is a preliminary requirement to the provision of a good factory seat. Each operation usually done standing should be studied to ascertain whether it can be performed from a seated position or while alternating standing and seated positions. Rearrangement of work material, readjustment of seats, or planning of special types of seats can make it possible to provide seating at almost any factory job on which women may be employed. Sliding seats have been devised for work caring for several machines or moving along a table. Conveyors or turntables can be adapted to make walking back and forth unnecessary. Crowding in plants to hasten war production may complicate the problem of seating workers, but it does not make proper seating impossible. Industrial-seat manufacturers have devised good-posture seats of wood so that the withdrawal of steel for immediate war needs will not make standing at work necessary.

Instruct the Worker in Good Posture.

A person may sit properly on any kind of seat, a soap box if necessary. To do so requires considerable muscular effort, which itself is fatiguing. On the other hand, a person may assume a poor posture in a well-designed chair.

The worker should be told that good posture is a necessary part of efficient operation on her job. She should be instructed to sit well back in the chair, with her back erect but not stiff, so that shoulders and arms will be free to move comfortably. She should know that slumping crowds the abdominal organs, retards circulation, impedes respiration, and increases fatigue.

The worker can improve her posture by learning to sit and stand well. Comparative pictures can be used to advantage in the training period to demonstrate the best way to sit and stand and the disadvantages of poor posture. The woman worker can improve her posture by selection of well-fitting shoes with low heels and room for the natural spread of the toes. Comfortable clothing suited to the work contributes to good posture. Maintenance of good posture and instruction in correct posture can well be combined with brief periods of exercise for workers who spend most of their workday seated.

Good Posture Is Dependent on Hygienic Factory Conditions.

Fatigue from any cause is almost certain to result in poor posture. Hence an important feature in the maintenance of good posture is attention to other factors in fatigue prevention, such as lighting. Good lighting is inseparable from good posture. The amount of light on the work should conform to the recommendations of the Illuminating Engineering Society approved by the American Standards Association in March 1942.¹ Lighting should be carefully designed to prevent glare. The value of good-posture seats can be nullified if the operator is forced to adjust her posture to prevent eyestrain.

The Properly Seated Worker Is a More Efficient Worker.

Of the beneficial effects of good-posture seating disclosed by investigations, the following are typical examples:

Providing chairs and tables suited particularly to the occupation increased production in a rubber factory so that 16 girls did as much work as 20 had done before.

Women polishing metal increased their output as much as 32 percent when special seats were provided that made it possible to work seated or standing.

When workers could alternate sitting and standing, muscular ability increased by 6 to 15 percent over muscular ability when either standing or sitting all the time.

Seating Is Especially Important to the Health of Women.

Seating is particularly important for women. Continuous standing may aggravate menstrual troubles, and under no circumstances should it be required of pregnant women. Further, because of their tendency to suffer from varicose veins, standing is harmful for women. In the recent medical study of 536 New York department-store employees over 40 years of age who had been at least 10 years at this work,²

¹ Illuminating Engineering Society. American Recommended Practice of Industrial Lighting. Approved March 17, 1942, by American Standards Association. For brief summary of provisions of these standards see Women's Bureau Bul. No. 193.

² Lake, Michael, M. D.; Pratt, Gerald H., M. D.; and Wright, Irving S., M. D. Arteriosclerosis and Varicose Veins: Occupational Activities and Other Factors. In *Journal of the American Medical Association*, Vol. 119, No. 9, June 27, 1942, pp. 696-701.

women who stood or walked showed a higher incidence of varicose veins than those who sat at their work, a condition not found among men. Moreover, there was a decided difference between the men and the women in the incidence of varicose veins. The difference was by no means due solely to pregnancy, as is clear from the following:

	<i>Percentage with varicose veins</i>
Men.....	40.7
Women.....	73.2
Never pregnant.....	66.9
One or more pregnancies.....	79.5

The physicians who made this study attribute the difference, at least in part, to the “noticeable difference in the firmness of the surrounding tissues supporting the venous back pressure.” The part played by high heels and inactivity of leg muscles has not been explored.

State Regulations.

All States but Mississippi have laws that require some kind of seating accommodations for women workers. Most of the laws require that seats be available for women when they are not actively engaged in their duties or when sitting does not interfere with the proper discharge of duties. Few give consideration to seating at the job.

In many States the laws apply to all or practically all occupations or industries, in a number to manufacturing and mercantile establishments, and in a few to mercantile occupations only. Manufacturing occupations or industries are covered in the laws of all States but Alabama, Florida, Maryland, Mississippi, North Dakota, and South Carolina. The extent of enforcement varies widely even in normal times. With the rapid new employment of women in war industries and the consequent overcrowding, the present situation as to enforcement is confused.

Most of the States specify that “suitable” seats shall be provided, some designate “chairs, stools, or other contrivances,” a few provide that seats may be permanent fixtures so adjusted as not to obstruct the work. Regulations in four States—

Kansas, Minnesota, New York, and Ohio—specify seats with backs; in California, Kansas, and Washington there must be footrests. California and Washington require adjustable seats at work tables or machines to permit the position of the worker in relation to her work to be substantially the same whether seated or standing.

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9331.4A28

BOARDING HOMES

for

WOMEN WAR WORKERS

SHELTER

plus

Safety

Security

Decency

Cleanliness

Health

Adequacy

Comfort

Convenience

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

Special Bulletin No. 11
January 1943

FEB 25 1943

FELLOWSHIP

One of the finest services you can render your guests is to raise morale through friendly contacts.

Give your young people the opportunity to meet other young people, and to share in church and community activities. Let them feel through your personal attitude your genuine interest in their well-being and happiness.

Those young workers who are away from their homes, perhaps for the first time, will be grateful always for your thoughtfulness.

To THE HOSTESS:

This handbook is issued for the patriotic person who chooses to serve the country in its war stress by operating an approved boarding home for war workers.

It lists the main service features that commend such a home for the approval of its guests and an equally interested public.

Desirable Services

GENERAL

- Location—Convenient as possible to work area and transportation.
- Good neighborhood, pleasant surroundings.
- Attitude of manager—Courteous, friendly, businesslike.
- Financial dealings—Prompt attention, scrupulous honesty in every detail.
- Atmosphere of house—Clean, fresh, wholesome, hospitable.
- Local health rules—Thoroughly understood and met.
- Building and fire rules—Understood and met.
- Separate floors for the sexes if both men and women are guests.
- House register—For name, home address, and work location of each guest.

GUEST PRIVILEGES

- House policies—Brief written statement of these supplied each guest on arrival.
- Entertaining friends—A place provided other than bedrooms.
- Personal laundry—Facilities arranged other than bathroom.
- Personal mail of guests—Provision for safekeeping and assured delivery to addressee.
- Telephone messages—Notice of calls for absent guests given as promptly as possible.

FOOD

- Storage and handling—Such as to insure clean, wholesome supply.
- Meals—Nourishing, balanced menus; food well-cooked; adequate servings.¹ Meals supplied in room for guest who is disabled or slightly ill. A small charge may be made for this service, if necessary.

¹For helpful suggestions write the Bureau of Home Economics, U. S. Department of Agriculture, Washington, D. C.

GUEST ROOMS

- Doors—Entrance from hallway, never through another room.
- Locks and keys—Provided and in good repair.
- Windows—At least one opening on yard or street; cross-ventilation if possible. Screens for all windows.
- Shades or venetian blinds—For each window.

MINIMUM FURNISHINGS

- Beds—Single, and limit two to a room.
- Bed covers—Sufficient for comfort.
- Mattress and springs—Comfortable, clean. Use mattress covers and pads, and give your mattresses a long life.
- Bureau, or chest of drawers with mirror.
- Chairs—At least two for double rooms. Comfortable chairs make friends for your house.
- Desk, or small sturdy table, and chair.
- Portable light—For sewing, reading, and so forth.
- Closet or wardrobe—With lock and key.
- Rug, or other floor covering.

HOUSE LINENS

- Sheets and pillowcases—Changed regularly, at least once a week.
- Bath and hand towels—At least two of each weekly for each guest.

BATHROOMS

- Schedule arranged for baths.
- Bath and toilet—One for each seven persons at least.
- Equipment kept in good repair, and clean. Tub brush and cleaning powder supplied.
- Extra lavatory outside bath. One for each four persons desirable.

Practical Suggestions

FINANCING

Housing war workers may entitle you to a loan sufficient to start you in business, if alterations and improvements are required. Consult your local Homes Registration Office or local War Housing Center. If your community has neither of these offices, your postmaster should be able to give you the location of your regional National Housing Agency office.

RATES CHARGED

Consult your community rent control committee to find what rates you should set for your guests. Also consult your local representative from the Federal Office of Price Administration as to registration.

Room rent alone should not cost an employed girl more than one-fifth of her income, as a general rule.

EMPLOYER'S RESPONSIBILITIES

Find out the State health requirements for domestic help, and what is expected of an employer if contagious or infectious disease is present among employees. Talk with local health officials, and with Federal housing representatives in your community. They can give you valuable suggestions. Also, you will need to know about the records you should keep for local and Federal tax reports.

EMERGENCIES

Keep a first-aid kit on hand for immediate treatment of minor cuts, burns, and other slight injuries. For serious wounds and for sudden illness, call a doctor.

If a contagious disease develops, call the doctor and the health officer; talk to no one else. Isolate the patient, use separate dishes and equipment. Act at once to protect others in your home from the malady. When the patient is removed, fumigate the room with a formaldehyde solution, on druggist's directions. Sun and air room and furnishings afterward.

If a death occurs, talk to no one, but close the room, call a physician and the coroner.

The names, addresses, and telephone numbers of doctors, health officer, and coroner should be recorded in your desk-book for quick reference.

If fire starts, get all persons out of the house as quickly and quietly as possible. Regular fire drill, under leadership of a captain and lieutenants chosen from the household, will prepare your household to act in such an emergency.

Have fire exits well marked and lighted at all times.

Keep all passages to exits clear.

Show your guests where fire exits are and how to reach them quickly from their rooms.

Urge guests to remember general location of windows.

Invite member of local fire department to show guests how to protect themselves if caught in a burning house.

If a death occurs, talk to no one, but close the room, call a physician and the coroner.

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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR

+

CHOOSING WOMEN
for
WAR-INDUSTRY JOBS



SPECIAL BULLETIN NO. 12 OF THE WOMEN'S BUREAU

MARCH 1943

United States
Government Printing Office
Washington : 1943

U. S. SUPERINTENDENT OF DOCUMENTS

JUN 18 1943

LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,

WOMEN'S BUREAU,

Washington, March 22, 1943.

MADAM: Effective methods and standards for fitting women into war-industry jobs are a vital part of the war program. Haphazard selection policies result in inefficient employees, excessive absenteeism, and high labor turn-over. As a primary aid to employers newly faced with the problem of choosing a woman-labor force, the Women's Bureau here summarizes basic principles that have proved helpful in securing satisfactory service with women workers.

The research and preparation of this report are the work of Mildred P. Crowder of this Bureau's Research Division.

Respectfully submitted.

MARY ANDERSON, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.

CHOOSING WOMEN FOR WAR-INDUSTRY JOBS

Sizing Up the Job for Women

Selecting the Woman for the Job

The application blank—The interview—

The interviewer—Employment tests

Aids in Selecting Women

Recommendations



The American war program must call more and more women for service on the industrial labor front. The number of women at work increased by nearly 20 percent in the first year of active participation in the war. Further large additions are predicted for 1943. Though many of the women needed in war production have had no factory experience, they are well suited for certain kinds of important work and are eager to give their best service. Such service is possible, however, *only if they are placed in the jobs for which they are best fitted* and are advanced as they become ready for more difficult work. Haphazard hiring policies, like unsatisfactory conditions on the job, result in inefficient employees, excessive absenteeism, and higher labor turn-over. Reports from the field show that some plants have had these difficulties. Putting the right person in the right place at the start is a long step toward maximum output. Sincere interest in the employment of women and belief in their capabilities go far in developing a good program for the use of womanpower.

SIZING UP THE JOB FOR WOMEN

The first step in a sound placement program for women is selecting, on the basis of job analysis, the jobs suitable for them. The number of jobs that fall into this category far exceeds the number for which women customarily have been hired. Investigators from the Women's Bureau, U. S. Department of Labor, have found during the past year that many employers are

putting women on a variety of jobs formerly never thought of as suitable for them.¹ For example, in one of the major aircraft companies on the west coast women comprised less than 2 percent of the labor force in November 1941, but over 50 percent a year later.

Job analysis reveals not only the skills required but the physical demands of tasks in terms of strength, posture, and exposure to hazards. In the process of such analysis, engineering changes may be indicated that will lessen the physical demands of the job and increase operating efficiency. The following examples indicate how conversion not only increased the operating efficiency of the jobs but made them practicable for women.

Engineers of a middle-western company effected a saving of time and eliminated fatigue for the worker by converting a hand-operated arbor press into an air-operated machine which stakes screws in a 20 mm. shell booster. The staking machine is operated by a young woman who was on a machine for making loose-leaf binders before her employment on war work.

Another company eliminated the necessity for lifting and handling an air-operated wrench by suspending it from a counter-balanced support. A woman has replaced a man on this job. She is able to operate simultaneously two such counter-balanced air-driven wrenches instead of the one operated by her male predecessor.

Types of Work Women Do Best.

Women are particularly good at fine processes requiring painstaking application. They have patience and finger dexterity and soon learn to make careful adjustments at high speed with great accuracy. They are also successful at jobs requiring the operation of large machines when the proper conveyors, automatic chucks or stops, or other mechanical aids are provided.

Plant Factors Adapted to Women Workers.

Sizing up jobs for women also involves the consideration of factors in plant organization, such as degrees and types of responsibilities, attitudes of supervisors and fellow workers toward women, suitable plans for upgrading women workers, and adequate measures for protection of their health and safety.

¹ See for example Women's Bureau bulletins 192-1, Aircraft Assembly; 192-2, Artillery Ammunition; 192-3, Cannon and Small Arms.

SELECTING THE WOMAN FOR THE JOB

Hand in hand with the importance of selecting jobs suitable for women goes the importance of selecting the right woman for the particular job. Matching the woman to the job is the real problem with which industry must concern itself. Effective plans for this go far toward securing maximum production.

Selection procedures necessarily vary from plant to plant, due to variation in types of jobs for which women are selected and physical differences in plant set-ups. In general, desirable steps in any well-rounded selection program include: (1) Making sure the application blanks are adequate; (2) planning for a series of interviews; and (3) wherever possible providing tests specifically tailored to the job. Every plant should have competent persons to conduct these hiring procedures. Good selection standards manned by competent personnel result in better adjusted and more efficient workers.

A large eastern plant engaged in vital war work has had notable success in its recruiting program. This program was initiated by selecting a man with the ideal combination of intimate knowledge both of industrial operations and of selection and testing techniques to head the personnel department. He has a keen interest in the employment of women, and the personnel policies set up under his direction are sound and have been successful in developing efficient and satisfied workers.

THE APPLICATION BLANK

A carefully drawn application blank goes far in simplifying the selection procedure. It should furnish the interviewer, in a minimum of time, with valuable information concerning the applicant. Only information determined by job analysis to be relevant to the individual's suitability for the job should be asked for. The answers should be checked for accuracy.

Items most frequently included on the application blank are concerned with personal information such as name, address, telephone number; physical characteristics and disabilities; educational background; work history; and references. It may be desirable to add to or to subtract from this list of items, depending on the job or jobs for which the form will be used.

Such matters as religious affiliation should not be included; they tend to create ill will.

A good many plants have found it desirable, before the preliminary interview, to use a short application form when the applicant enters the personnel office. There is then no need for the applicant to fill out a more detailed form if the preliminary interview eliminates her as a possible employee.

THE INTERVIEW

The interview probably is the most important of the procedures employed in personnel selection. According to Bingham and Moore,² recognized personnel authorities, it serves three basic functions: Securing information, giving information, and establishing friendly relations. These functions usually are performed in not one but a series of interviews, of which the most important general types are the preliminary, the selection, and the departmental. It cannot be too frequently emphasized that the best results can be secured only when the interviewing at every stage is done by personnel that can give the woman interviewed confidence that they believe in women's capabilities.

The Preliminary Interview.

The primary purpose of the preliminary interview is to weed out in the first stages of the selection process those individuals who do not possess the minimum requirements for the available jobs. This usually can be accomplished in the course of only a few minutes if the applicant has filled out a short application form. At this time the individual who is retained as a prospective employee is given the forms that must be filled out. Appointments are made for further interviews with the proper interviewing units and for taking tests if any are to be given at this point in the procedure. It is well if this first interviewing can be done by a personable and tactful woman who has had actual experience on the job.

The Selection Interview.

The most important interview in the series is the selection interview. It is at this time that the basic evaluation of the applicant is made, and that the individual is matched tentatively with the job.

²How to Interview, Harper, 1941.

The exact form of the interview varies from company to company, due to differences in plant set-up and types of jobs to be filled. In every instance, however, the interviewer should be familiar with all available pertinent information concerning the applicant, including scores if any tests have been given. If tests have not been given, the selection interviewer may find it desirable to have them administered before making a final decision. Information concerning working conditions and plant facilities should be given the applicant at this time, which requires that the interviewer be familiar with such information.

The Departmental Interview.

The importance attached to departmental interviews varies greatly from plant to plant; in many they are eliminated altogether and in others they are merely a perfunctory endorsement of the personnel department's selection for the job. On the other hand, in a large number of cases the department head makes a final selection from a group of applicants chosen by the personnel department as qualified for the job.

It is not practicable to lay down specific rules as to the merits of the departmental interview, but usually it is important that the department head who has the responsibility for this employee's work be given at least the opportunity to accept or reject the choice made by the personnel department. In a large electrical company that pays particular attention to selection, the personnel office insists that final choice of an employee be made by the foreman of the department where she will work.

THE INTERVIEWER

The success of the interview as a part of any selection program depends on the general competence of the interviewers. Recognition of this fact makes it imperative that the utmost consideration be given to the proper selection of the persons doing this work. Experience has shown that individuals most likely to succeed as interviewers possess among other characteristics a desirable combination of the following personality traits and vocational background:

Pleasing personality and cordial manner.

General knowledge of plant procedure.

Detailed familiarity with the job analysis of the jobs to be filled.
Objectivity: Ability to avoid allowing personal bias or prejudice to enter into decisions.
Ability to evaluate tests and interpret test scores.
Ability to adapt to changing conditions.
Ability to inspire confidence in the job seeker.

Some "Do's" and "Don'ts" for the Interviewer

- Do** —determine what it is necessary to find out in the interview and pattern the interview accordingly.
—have information from application blank and test scores well in hand *before* interviewing applicant.
—gain confidence of applicant as early in interview as possible.
—be sure that the physical surroundings are private and conducive to putting applicant at ease.
—give applicant an opportunity to talk freely.
- Don't** —be unduly influenced by the physical characteristics of the applicant, unless they are particularly important for the job.
—take for granted that habits in one activity are transferable to another; a neat-looking person may not be a neat worker.
—ask questions that are answered on the application blank or attempt to check their accuracy through the interview.
—give the appearance of rushing through the interview.
—ask leading questions.
—overemphasize the age factor; it is ability on the job that counts.

EMPLOYMENT TESTS

Tests must not be thought of as substitutes but only as aids to the procedures in a personnel-selection program. Tests have much to offer in a recruiting, training, and upgrading program for individual workers. They must be properly tailored to the job, and administered and interpreted by competent personnel. If care is taken on these points, tests should be particularly valuable at the present time as aids in the recruitment of women workers for war production.

Though various types of tests have been used successfully by many industrial plants, they should always be employed with caution, and only under certain specified conditions.

First, all tests should be set up or selected in terms of a specific job. A thorough job analysis and classification should precede any testing program.

Second, a testing program should always be set up and placed

under the direction of someone trained and experienced in industrial testing techniques.

Third, the results should always be interpreted and used by experts only.

If a testing program is set up under these conditions, and if the program receives cooperation from the supervisors and employees, it should be a most effective aid in recruiting, training, and upgrading industrial workers.

Two of the most widely used and generally successful types of tests are the trade and aptitude tests.

Aptitude Tests.

Aptitude tests are employed in an attempt to measure a person's ability to do a specific job. They usually take the form of pencil-and-paper or performance tests. Many have been tailored to test special abilities such as motor control, including steadiness and speed and accuracy of motion; finger dexterity; dual hand coordination; and visual perception. Others have been designed to test general mechanical comprehension. Those which attempt to measure general mechanical ability are somewhat discredited. This is because of the variety of skills needed for the various industrial jobs.

The O'Connor finger-dexterity test is an example of a performance test which has been used extensively in testing for many factory jobs specifically requiring dexterity of the fingers. The equipment consists of a metal plate, into which 100 holes have been drilled, and a collection of small metal pins, 310 in number. Each hole is large enough to hold three pins. The applicant is required to place the pins three at a time in the holes until all are filled. The score is one-half the total of the time taken to complete the first half of the plate plus 1.1 times the time taken to complete the second half.

Trade Tests.

The trade tests have proved useful in measuring a person's familiarity with a specific job, and in indicating her knowledge of certain terms, tools, apparatus, and general job procedures. As such they are valuable in eliminating those individuals who exaggerate or overrate their abilities. In training courses they may be used as checks on the effectiveness of the course and the

progress of the individual. The United States Employment Service has found trade tests useful in its placement program. However, it is important to remember that they measure only a person's *knowledge* about a job and not her *ability to do* the job.

The following questions, designed to test an individual's knowledge of lathe operations, are typical of the questions included in the average trade test:

What are the three methods for turning and boring tapers in the lathe?

Which is the most accurate of all types of chucks?

What does the lathe carriage include?

Intelligence and Temperament Tests.

Besides aptitude and trade tests, intelligence and temperament tests sometimes are used as aids in placement procedures. Intelligence tests alone seldom prove useful in industry, but when used with aptitude and trade tests they can add valuable information. It is found that if an individual rates high in intelligence but low in mechanical ability, she is likely to become a dissatisfied worker if placed in a routine job. She may be more successful in a job requiring more abstract intelligence. The United States Employment Service uses parts of intelligence tests in its aptitude and trade tests with satisfactory results.

A few plants have used temperament tests rather extensively in their placement programs. However, relatively slight progress has been made in this realm of testing; hence it should be used with the greatest caution and only when other selection procedures fail to produce the desired results.

AIDS IN SELECTING WOMEN

Large industrial plants with sufficient financial resources to hire well-trained employment personnel should encounter little difficulty in setting up personnel-selection procedures to fit their particular needs. However, many industries are not themselves equipped to follow all the desirable steps in a good personnel-selection program. For these a number of services are available.

The Women's Bureau will on request go into a plant and analyze its jobs with a view of determining their suitability for women. The Bureau has done this on a considerable scale in

the aircraft, the machine-tool, and other industries newly employing many women. The Bureau occupation experts suggest which jobs are suitable for women or can be made so with certain engineering changes. The largest service and the one most widely spread geographically is the United States Employment Service. There are also private organizations, such as the Psychological Corporation, which act as consultants in setting up testing programs and which service employers with regard to setting up personnel-selection programs.

RECOMMENDATIONS

For successful selection of women for war-industry jobs, the Women's Bureau recommends:

1. Prior to selecting women for the jobs, a careful analysis of the plant should be made to determine:
 - a. Which jobs are suitable for women.
 - b. Which jobs can be made suitable for women.
 - c. What changes are necessary in conditions surrounding the job, as for example in height of seats or benches, in weight of machine parts or of products to be handled, in installation of mechanical lifts, and so forth.
2. The persons who are to select women should have the following qualifications:
 - a. Detailed knowledge of the jobs to be filled and of conditions in the plant.
 - b. General knowledge of the types of work for which women ordinarily are fitted.
 - c. Interest in women and belief in their capabilities.
 - d. Competence in interpreting such tests as may be used in selecting women.
 - e. Freedom from personal prejudices, and ability to inspire confidence in the job seeker.
3. The procedures for selecting women should be carefully planned in advance, and may well include:
 - a. Provision of simple and adequate application blanks.
 - b. A series of interviews, with purposes as here described.
 - c. Tests rigidly tailored to fit the specific job.

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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

MARY ANDERSON, DIRECTOR

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Part-Time Employment of Women in Wartime



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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, June 21, 1943.

MADAM: I have the honor to transmit for publication a report on the subject of part-time employment of women, which brings together the material available and presents the recommendations of the Women's Bureau for this important part of the war program.

The report is the work of Alice Angus of the Division of Minimum Wage and Labor Legislation.

Respectfully submitted.

MARY ANDERSON, *Director.*

HON. FRANCES PERKINS,
Secretary of Labor.

Women's Bureau Recommendations

1. Employment of women on a part-time basis is recommended, in areas where a shortage of woman labor exists, as a means of utilizing the services of women not available for full-time jobs.
2. Part-time employment of women not available for full-time work is recommended as a means of increasing production in war plants in place of extending the hours of regular women workers beyond 8 hours a day or 48 hours a week.
3. Part-time employment of such women in service industries is recommended as a means of meeting essential civilian requirements and at the same time releasing some full-time workers for war production industries.
4. Employment of women on a part-time "relief shift" is recommended as a practical method of reducing absenteeism of full-time employees by allowing them regular time off to take care of personal and domestic needs.
5. Wage rates for part-time work should be the same as wage rates for full-time work on comparable jobs, and in no case should women's rates be less than those of men.
6. Beginning and ending hours of part-time shifts should be adjusted to meet the needs of the woman worker, special consideration being given to women with children of school age. Women with children of preschool age should not be actively recruited for either part-time or full-time work.
7. Working conditions standards for part-time workers, as for full-time workers, should include a rest period of at least 10 minutes during each 4-hour shift, not more than 5 hours without a lunch period, and 1 day's rest in 7. Women should not be employed on part-time work on the third or night shift.
8. Development of community facilities to meet the needs of employed women, including adequate provision for child care, laundering, marketing, shopping, and other household duties, is recommended as an imperative necessity in order to enable women to make their greatest contribution to the war effort.
9. Employment on a part-time basis of women who have full-time employment elsewhere is not recommended. If such employment becomes necessary in emergency situations, it should not be continued beyond the period of actual necessity. In no case should the woman worker's total employment exceed 8 hours a day, 48 hours and 6 days a week.

Part-Time Employment of Women in Wartime

VICTORY SHIFTS, 1943

All present signs point to a tremendous—and almost immediate—
increase in the number of women part-time workers.

Women's employment is at an all-time high—almost 16 million
in May 1943—an increase of nearly 3 million over May 1942 and of
more than 5 million over December 1940. Many plants are employ-
ing women in all types of production and the demand for women
workers is increasing by leaps and bounds.

Large numbers of women homemakers are already working in in-
dustry. Some who are not now employed may be available for full-
time jobs. For many of them, however, full-time jobs will be out of
the question; no matter how anxious they may be to take employ-
ment, they must continue to carry the major responsibility for run-
ning the home. The services of these women could be utilized on a
part-time basis.

Women's Bureau field representatives found in the spring of 1943
that employers in localities where a woman-labor shortage exists
were already employing women on a "Victory shift," the popular
term for part-time employment in war plants. The object of such
employment is to utilize the services of persons not available for
full-time work and in this way to increase production. A "Victory
shift" worker may be defined as one who is not available for full-
time work in a war plant but who is regularly employed less than a
full week, on a definite shift and for a specified number of hours.

From the worker's point of view, part-time employment as it is
now found in war plants is essentially different from part-time em-
ployment as it customarily existed in the various service industries.
The war-plant manufacturer employs part-time workers because he
cannot get full-time workers. The service industries formerly em-
ployed part-time workers because they filled a peculiar need of the
industry, enabling the employer to furnish service at periods of peak
public demand and to save labor cost. Women were hired for part-
time work in the service industries without regard to their avail-
ability for full-time work, or, more important, their economic need
of it.

So far as the worker is concerned, the economic aspects of part-
time employment have changed with the war. No longer is it neces-
sary for a woman who wants full-time work to take part-time work.
At the same time the greatly increased opportunities for employment
enable women who are not available for full-time employment to
make a contribution to the war effort through part-time employ-
ment. It is for the latter group only that part-time employment is
recommended.

ADVANTAGES OF PART-TIME EMPLOYMENT

Following are some of the advantages of part-time employment for war-plant employers and women workers.

For the Employer.

1. Part-time employment increases the total labor force and permits a more complete utilization of workers. Where full-time labor is scarce, the hiring of two part-time workers on an unskilled job may release one full-time worker for upgrading to more highly specialized work.

2. It tends to decrease plant absenteeism. It allows a woman with family responsibilities sufficient outside time to take care of family needs, whereas with a full-time job she would necessarily have to take time off at more or less frequent intervals. Employment of a part-time "relief force" is a device by which the employer can arrange to give full-time workers regular hours or days off, and thus obtain a steadier work force.

3. It permits reemployment of women with special training who left work on marriage and who would not be able or willing to return to industry on a full-time basis.

4. Experience has proved that short hours prevent fatigue and increase efficiency; hence part-time employees can be used to advantage on work which requires a high degree of concentration or is unusually tiring.

For the Worker.

1. Part-time employment allows a woman enough time outside the job to carry on household duties and take care of family and business affairs.

2. It enables her to make a much-needed contribution to the war effort through her own labor.

3. It provides extra money to meet the increased cost of living or to buy war bonds or stamps.

4. It furnishes experience and training that may prove valuable in the future.

PART-TIME SHIFT HOURS

Satisfactory arrangement of working hours is a major consideration in the successful employment of part-time workers. Hours of part-time shifts must be adjusted to those of full time so as to permit the most efficient use of plant space, equipment, and facilities. The part-time worker's convenience must also be taken into account and hours adjusted to fit in with her outside activities, if a steady part-time force is to be built up.

The type of work to be performed by part-time workers will largely determine the extent to which part-time hours will coincide with hours of the regular force. Adequacy of plant facilities, such as rest rooms and lunch rooms, is also an important factor to consider. If washroom and locker facilities are limited, it may be impractical to have either the beginning or ending hours of part-time shifts the same as those on full time. If lunch-room facilities are inadequate, it is undesirable to employ part-time workers longer than 5 hours a day.

Convenience of transportation service also has a bearing on hour schedules of part-time workers. Part-time workers should not be required to travel during rush hours. In plants with very inadequate transportation facilities, so that workers must depend largely on private conveyances, part-time shifts of any kind may be impracticable. Part-time shifts are of doubtful value also in plants located in isolated areas, far from the communities in which the potential workers live. A woman who is prevented by outside duties from taking a full-time job should not be expected to spend several hours a day traveling to and from a part-time job.

Arrangement of part-time shift hours should take into account the worker's outside responsibilities. As a practical matter, the employer will find that the type of part-time worker he obtains will be determined to a large extent by the hours in which the work offered is to be done. For example, late evening shifts or shifts that run through the dinner hour usually are not convenient for housewives. On the other hand, students and workers with full-time jobs elsewhere will seldom be available for part-time work at any other hours.

Part-time shifts in plants visited by Women's Bureau representatives followed three general patterns: First, short-hour, or part-day, shifts; second, shifts of approximately full daily length but covering only a half week or occurring on alternate days; third, week-end shifts. Of these, the short-hour shifts were by far the most common.

Short-Hour Shifts.

Short-hour or part-day shifts usually were 4 hours in length and were worked on 5 or 6 days a week, making a total weekly employment of 20 or 24 hours. A few shifts were 6 hours in length. No part-time employment on 7 consecutive days was reported.

In practically all plants visited, part-time workers had been employed only a few months, and hour schedules still were on a tentative or experimental basis. Some plants had only one part-time shift schedule, so that all part-time workers were employed the same hours. Others had a variety of part-time shifts, arranged to suit the convenience of various groups of part-time workers. A few plants teamed up part-time workers in pairs, so that one worker would be employed for 4 hours or the first half of a regular 8-hour shift, and his alternate would then come in and work the second half of the shift.

When short-hour workers were employed in teams, the beginning hour of the first worker and the ending hour of the second worker coincided with the corresponding hours of the regular full-time shift. Plants had no prevailing policy concerning the relation of other short-hour schedules to full-time schedules; some short-hour schedules overlapped, and others coincided with full-time schedules. One unusual arrangement was that in which the short-hour shift was used to keep the plant in operation by filling in the 4-hour stretch between two regular 10-hour shifts.

Following are typical schedules for short-hour (or part-day) shifts:

10 a. m. to 2:30 p. m.	4 to 8 p. m. and 8 to 12 p. m.
8 to 12 a. m. and 1 to 5 p. m.	3 to 9 p. m.
8 to 7 p. m. or 4 to 8 p. m.	6 to 10 p. m. or 7 to 11 p. m.

Though these shifts have a variety of beginning and ending hours, they will be seen to fall roughly into three groups:

(a) Shifts occurring in the morning or midafternoon; (b) late-afternoon shifts; (c) evening shifts.

Information obtained from plants employing part-time workers on these various shifts indicates that the period of day or evening for which part-time work is scheduled has a very definite bearing on the type of part-time worker obtained. Indirectly, the time of day in which the shift is scheduled, as well as the length of the shift, gives rise to other related problems.

Morning or midafternoon shifts.—Shifts that occur during morning or midafternoon hours usually are the most convenient for women with heavy home responsibilities or children of school age. These hours enable the homemaker to prepare the morning and evening meals for her family and get the children ready for school before she leaves for work. Where their hours of employment are thus adjusted to their home duties, women homemakers constitute a large potential source of steady part-time workers.

A few firms made a definite object of attracting women homemakers by scheduling part-time shifts during midmorning and midafternoon hours. One firm was so fully convinced of the importance of convenient beginning and ending hours that it was adapting the work to "whatever hours the workers would come." This firm, employing 400 part-time workers, had adopted a wide variety of separate morning and afternoon shifts. One popular shift extended through the usual lunch hour, part-time workers being allowed the regular time off for lunch.

Late-afternoon shifts.—Late-afternoon shifts usually were designed to attract high-school students, many of whom were given school credit for performing part-time factory work. It is generally agreed that the part-time shift hours of such workers should be adjusted so that the total combined hours for school and work together do not exceed 8.

As late-afternoon shifts usually extend through the dinner hour, they are not convenient for the homemaker. In a plant with two late-afternoon shifts—3 to 7 and 4 to 8—high-school girls made up 75 percent of the workers on the 4 to 8 shift. The 3 to 7 shift had a large proportion of homemakers, thus showing that a difference of even 1 hour that affects domestic convenience is a matter of importance to this group.

Evening shifts.—Work during evening hours is a third type of short-hours shift. In some areas men with white-collar and professional jobs in daytime hours were extensively recruited for part-time evening work in war plants. Several plants had a small group of homemakers, indicating that some women may find it convenient to work in a plant when the domestic day is over and the children are in bed. Students and women with full-time jobs elsewhere also were employed. As already stated, employment of the latter group is not recommended.

None of the plants visited by the Women's Bureau employed women on the graveyard shift, though one plant was reported to be

recruiting women to split such a shift. Night work is difficult for everyone, because of the physiological adjustment involved in learning to sleep by day. Women employed on part-time work at night have an additional disadvantage in that they must perform their normal household duties in daytime hours in spite of broken rest. The Women's Bureau recommends that women should not be employed on part-time work at night.

In most plants visited by Bureau field representatives, the part-time shift worked simultaneously with the full-time shift, that is, both groups of workers were in the plant at the same time, though their beginning and ending hours often differed. In one plant, however, the part-time evening shift was used as a fill-in between the plant's two regular 10-hour shifts (these including 1 hour for lunch); the full-time day shift worked from 8 to 6, the part-time shift from 6 to 10, and the full-time night shift from 10 p. m. to 8 a. m.

Experience of this plant illustrates one disadvantage of employing regular workers on a long-hour basis and using a part-time shift as a fill-in. During the 4 evening hours, part-time workers in effect took over the operation of the plant machinery. It was not practicable, however, to have additional part-time supervision. Hence, the regular supervisors of each shift were required to work 2 additional hours, thus making a 12-hour day—from 8 to 8—for them.

In view of the incontrovertible evidence that over-long hours retard production by increasing fatigue, it would appear to be more practical for a plant to operate three 8-hour shifts with part-time workers distributed throughout the day and evening hours. This would permit reasonable working hours for all employees and eliminate the necessity of extra supervision for part-time workers.

The double job.—Plant practice in regard to employing on part-time work women who had full-time jobs elsewhere varied widely. One firm employing both men and women on the part-time evening shift reported that of 300 part-time workers all had full-time day jobs elsewhere except 10 housewives. Most of the women employed on a part-time basis by this firm were librarians and teachers who came in from patriotic motives. This firm also reported a high absence and turn-over rate among part-time workers. The part-time shift, averaging about 300 workers, had been established only 2 months, but already 30 had dropped out "because they couldn't stand it." Though part-time workers were employed only 5 evenings a week, there were tremendous absences some nights. The general absence rate for all workers in the plant was only 5 percent, but on the evening part-time shift it was sometimes as high as 50 percent.

Some firms stated that they did not approve of part-time workers with full-time jobs. Various reasons were given for this policy. One considered it undesirable for an employee to be so closely connected with two firms, as she might unintentionally give either firm valuable information about the other; this was especially to be feared where the job in either firm was of a clerical nature. Another reason given for not employing women on two jobs was that it might constitute a violation of the maximum-hour law.

Most employers, however, were genuinely concerned about the efficiency of a woman employed such long over-all hours. One personnel manager stated that if he employed women with full-time jobs

elsewhere he would be defeating his own purpose of speeding up production. His policy was not to keep anyone whose work in all employment totaled more than 48 hours. To carry this policy into effect, he checked from time to time to be sure that hours in the other company had not been changed.

A full-time job, especially with home responsibilities, taxes a woman's capacity to the utmost. Certainly the average woman who already has a full-time job cannot make a sufficient contribution through part-time evening work to justify the extra strain on her health and well-being. Where the part-time job involves a change in the type of work, as from clerical during the day to production at night, a woman worker may be spurred for a while by the novelty of her new work; but she is deprived of rest and recreation, and at the same time is subjected to the necessity of directing sustained effort and attention to a new task. In these circumstances fatigue is bound to accumulate and her efficiency on both jobs will eventually be reduced.

Part-time evening work added to her regular job puts an unwarranted strain on a woman even when her full-time job covers substantially less than an 8-hour day. Certain types of jobs, especially teaching and others of a professional nature, involve outside duties, so that the worker's time on the job is not accurately measured by her presence at the place of employment. Moreover, for most workers a part-time job involves extra traveling, and in many cases the time between the regular job and the part-time job is not long enough to be used efficiently but must be spent in "waiting around" for the evening shift to begin.

For these reasons, employment on a part-time basis of women with full-time jobs elsewhere is not recommended. Where it becomes necessary in emergency situations it should not be continued beyond the period of acute necessity. In no case should a woman's total employment for two or more employers exceed 8 hours a day, 48 hours and 6 days a week.

Meal periods.—As most short-hour shifts are only 4 hours long, the question of a meal period usually does not arise. However, some plants have longer short-hour shifts without employing workers a full 8-hour day. One plant visited by Women's Bureau representatives was found to be employing part-time workers from 3 to 9 o'clock, with only a 5-minute recess for rest. The employer stated that they were supposed to eat their meals before and after work.

A 6-hour stretch without an opportunity for rest is harmful to any worker, and with many people efficiency cannot be sustained for so long a period without food. Unbroken shifts of this length have special disadvantages for part-time workers. Often they have already done a day's work at home before beginning the part-time shift. Part-time shifts begin and end at odd hours so there is little opportunity to eat a full meal immediately before and after the shift.

The Women's Bureau recommends that women employed on part-time shifts of more than 5 hours should be allowed a regular lunch period at a convenient time during the course of the shift. The time allowed for lunch should be at least 30 minutes or longer, depending on lunch facilities in the plant. Where the part-time shift is 4 hours or longer, a rest period of at least 10 minutes midway during the

shift is advisable. Since both meal and rest periods increase the worker's efficiency and are reflected in greater output, they should be considered time worked and not deducted from the worker's pay.

Shifts of Approximately Full Daily Length.

Part-time shifts on which the workers are employed a full day, but only part of a week, are used in some plants. One plant visited by Bureau field agents that had continuous round-the-clock operation employed part-time workers on this basis on all shifts. The shift hours were:

8 a. m. to 4:30 p. m.

4:30 p. m. to 12:30 a. m.

12:30 a. m. to 8 a. m.

Regular workers were employed 6 days, 48 hours a week. Part-time workers were employed either 2 or 3 consecutive days. The employer stated that these part-time workers were largely homemakers with families, and most of them older women. They were willing to work a few days a week but were not inclined to take full-time jobs.

In another plant visited, a group of women were working a reduced day. They worked daily from 9 to 4, while regular employees worked from 7:30 to 4. Shorter hours were a special concession to employees of long standing who had children and home responsibilities. By working the reduced hours the part-time workers were able to get their children off to school before coming to work. In the absence of such an arrangement, some of them could not have worked at all. As the firm was not a war plant but a clothing factory, in which certain jobs involved considerable hand work, the variation in starting hours did not upset production to any great extent, and the employer said he expected to extend the privilege to other employees if they demonstrated a need for it.

Some plants that employ women on a full-day half-week basis "team up" workers in pairs so as to insure a full-time continuous output. For example, one woman works Monday, Tuesday, and Wednesday, and her team-mate works Thursday, Friday, and Saturday.

A few plants that operate on a continuous 24-hour 7-day basis use full-day part-time workers on a relief shift to take the places of regular women workers on their days off. One firm, which gets rush calls for extra production on short notice, reported that they have considered organizing a crew of women from among residents of the community who would be "on call" for emergency periods. Actually, of course, women employed under such an arrangement would be extra rather than part-time workers, since they would not be employed regularly and on a definite shift. This spare-hand system is an old practice in the textile industry.

On the whole, part-time employment that required the worker to be on duty full days for part of a week was much less common than employment on a short-hour daily basis. The full-day shift usually is not practical for homemakers who have children of school age. Other homemakers, who can adjust their marketing and housework, may find it more convenient to work full days part of a week than short hours on every day.

Week-End Shifts.

A few firms have organized shifts on which workers are employed either for week ends only or, in some cases, all day Sundays and two or three evenings during the week. Part-time workers are sometimes employed on week-end shifts to take the places of full-time workers on their regular days off. Part-time week-end shifts are composed mainly of white-collar workers and others with full-time jobs elsewhere who are willing to do extra work in "spare time" hours. Some homemakers also find week-end shifts convenient, as they can leave the children with their husbands on the latter's one day off.

One plant visited by Women's Bureau agents employed two groups of part-time workers on Sunday, some of whom also worked two or three evenings during the week. The schedules of these workers were as follows:

Evening hours: 5 to 11 p. m. or 7 to 11 p. m.

Sunday hours: First shift 8 a. m. to 3 p. m.; second shift 3 p. m. to 11 p. m.

In this plant the Sunday part-time shift was established expressly as a "relief shift" in order that regular workers could have Sunday off. Previous to the inauguration of this shift the plant had tried to operate 7 days but to employ regular workers only 6 days by staggering their days off. However, so many workers were absent on Sunday in addition to their scheduled day off that a Sunday shift of part-time workers was adopted to keep certain key departments in continuous 7-day operation. Ninety percent of the part-time workers thus employed were white-collar workers who had full-time jobs during the week. Most of them were new to factory work, so during the first few weeks all the supervisors from all shifts were retained on Sunday. After three or four Sundays the part-time workers were considered to be sufficiently trained so that only half the supervisory force was required; and thereafter the supervisors split the Sunday work, each group remaining on duty for half a day.

Consequently, in this plant the week-end part-time shift involved continuous 7-day employment—regular job and part-time job—for nearly all persons working on it. Some of the white-collar workers had Saturday afternoon off and the supervisors had half a day Sunday, but neither group had the full weekly day of rest now universally recognized as essential to health and efficiency.

From the standpoint of the worker's health it makes little difference that the employment on the seventh day, in the case of the part-time worker, is of a different character and for a different employer from the work regularly performed throughout the week. The detrimental effect of the 7-day week has been proved conclusively by industrial experience. The policy of "1 day's rest in 7" has always been advocated for women workers by the Women's Bureau. During the present war the weekly day of rest has been adopted as Government policy for all workers in the interest of maintaining sustained maximum production.

Employment on their weekly "day off" of women who are employed a full week elsewhere defeats the purpose of part-time shifts; it impairs the worker's efficiency so that over a period of time she will produce less on both jobs. The Women's Bureau recommends that

women should not be employed as part-time workers where such employment will necessitate their working 7 days and deprive them of their weekly day of rest.

PART-TIME JOBS

Plants that employed women on part-time work in the spring of 1943 manufactured various products, including the following directly connected with the war effort:

Aircraft.	Radio tubes and equipment.
Gun parts, torpedo parts.	Optical supplies.
Carbine rifles.	Miscellaneous molded goods.
Time fuzes and instruments.	Slide fasteners, buckles.
Primers and flashlights.	Life-saving devices (rubber).
Electric fuzes.	Protective wear such as rain tights, jungle boots.
Condensers.	Life rafts and life boats.
Steel cores, brass primers, steel firing pins.	Textiles.
Roller and ball bearings.	

Production jobs on which women part-time workers were most frequently employed were assembly, light machine work, inspecting, packing. Women part-time workers also performed such assorted machine and hand operations as the following: Filing, drilling, burring, hand milling, spline milling machine operation, electric soldering, and grinding.¹

Independence of Work.

The consensus of employers appeared to be that on part-time jobs independence of work, though desirable, is not essential. Several employers stated, however, that part-time workers would be employed most successfully on operations that are separate and complete in themselves rather than part of a continuous process. Thus in a plant manufacturing lifeboats:

After the lifeboats are complete, both inner and outer tubes must stand an inflation test for 48 hours before they can be fastened together. This last operation is done by part-time women and is kept for the housewives because it is a single operation on which attendance does not affect other workers, as it does on a conveyor.

In another plant of the same company:

... There are some sewing-machine operations which are independent jobs and workers can work on them any time they wish for as long as they can.

In a plant making life-saving devices:

The jobs that part-time women do are the vest assembling and rolling the cement parts together with a small hand roller. ... The parts of the vests are cut by other operators and are then given to the assemblers to cement together and the rollers press them out with the hand roller. ... The work does not require any continuous operation so it can be started or stopped at any time.

Part-time workers were, nevertheless, employed on operations that were not only very complex but of a continuous nature, involving

¹ In Great Britain, where part-time employment of women has been used much more extensively than it was in this country in April 1943, women are reported as employed on other part-time production jobs, as follows: Riveting, welding, crane driving, internal transport, operating presses (hand and power); stamping and engraving part numbers; predrilling skins and any predrilling to jigs or templates; burring and fraying from machine and press shops; detail wiring; assisting draw-mill operators; holding up for riveters and assemblers.

great interdependence of workers. This is illustrated by the report of a firm making rain tights and gaites which employed part-time workers on the following job processes:

The material is cut as it passes on a slow-moving conveyor. Each girl has her allotted portion which she cuts with an electric knife which melts the rubber as it cuts, making a clean edge. . . . From the preparatory conveyor the material goes to the line where they are made. The end girl places the metal foot-shaped mold upside down on a jig which moves slowly down the line. Each girl adds one operation. The first puts on the upper, fastening it smoothly in place. The next puts on the sole, the next the heel, etc. One girl sees it through the press. At the end of the line the gaitee is put on a rack ready for curing. . . . This is all repetitive work. . . . The speed of the conveyor is increased with the experience of the workers.

The report of a plant making time fuzes and instruments reads:

Part-time workers were employed on fuze assembly at a conveyor. By the addition of a series of very small parts and insertion of small screws the time fuze is made ready for its time test or spinning. About 26 jobs are on the conveyor.

Employment of part-time workers on interrelated continuous operations necessarily involves certain adjustments. On such operations it is necessary to have a steady flow of materials, even speed of performance, and regularity of output. To offset short part-time hours, some employers are using part-time workers in teams, so that two such employees together put in a full day.

A device used to insure continuous production on part-time work, as on full-time work, is to train several workers on the same shift to do identical operations, so that if the work of one is interrupted a second worker can take over.

PART-TIME WAGE RATES

The Women's Bureau recommends that part-time workers be paid the same rates as full-time workers. Employment of part-time workers on a lower wage scale not only would be detrimental to such workers but would jeopardize the security of full-time workers. Part-time workers as a class should not be discriminated against in the matter of wage rates. In no case should women's rates be less than those of men.

In the plants visited by the Women's Bureau, plant practices in connection with wage rates usually were the same for part-time workers as for full-time workers. The beginning rates were the same for both and progression to higher rates occurred at similar intervals. Job rates were the same for both groups. Where a higher rate was paid for working on a less convenient shift, such as the evening or the night shift, the differential was in effect for part-time workers as well as for full-time. It should be remembered, however, that though rates for both groups were the same throughout, part-time workers could not earn so much proportionally as full-time workers because their hours were too short to entitle them to premium pay.

For women, beginning rates ranged from approximately 45 to 60 cents an hour, average rates from 55 to 75 or 80 cents an hour.

Women who worked on the 4-hour shift 5 days a week in these plants were able to earn from \$12.20 to \$16 for the week. In a plant employing part-time workers on a 7-hour week-end shift, the average

earnings for the day were \$5.50. Thus, women able to give as much as a half-day of their time 5 days a week added an appreciable sum to the family income; women who could spare only 1 day a week had earnings which, though not great in themselves, amounted over a period of weeks to a sum that made it worth their while to do part-time work. These earnings, obtained from work that would not be available in peacetime, are of special usefulness to homemakers in the war period, to help in meeting the rising cost of living and to further the war effort through the purchase of war bonds and stamps.

Though one employer frankly admitted that discrimination against women in the matter of wage rates had no relation to the work performed (the reason being simply that men and boys are "harder to get"), most employers sought to justify a wage differential between the sexes on the grounds of difference in work. One plant, which had a differential of 10 cents in the beginning rate and 38 cents in the top rate, reported that men's jobs required more strength and were harder on the hands. Another plant, in which there was a differential of 15 cents for part-time men and women classified alike as "inspectors," reported that "men do different work; it is heavier or it requires a different skill from what women do."

The experience of a plant in which the beginning rate for women was 15 cents less than that for men, the reason given being that "women's jobs required less strength and lifting," illustrates one of the difficulties resulting from the policy of discriminating against women in the payment of wages. In this plant 225 men and 75 women were employed on a part-time basis. The company was anxious to employ more women for part-time work but had not been able to obtain them. As a result, according to the personnel manager, "There are not enough women on the part-time shift, so men operate women's machines and are paid men's pay, which costs the company money."

The Women's Bureau has always advocated that wage rates, including the entrance rate, should be the same for women as for men. All inexperienced workers who enter a plant to do the same or comparable work should be paid the same beginning rate, women as well as men, and should be given equal opportunities for training. After they are trained, they should be paid the rate for the job. If the job is a new one, a rate which adequately reflects the fair value of the services should be established. If the job is one on which men are now or were formerly employed, women should be paid the identical rate paid to men.

PART-TIME EMPLOYMENT OF WOMEN OTHER THAN IN WAR PLANTS

Trade and Service Industries.

Employment of women on a part-time basis in the service industries and in trade is not a wartime development. Stores, restaurants, hotels, and to a lesser extent laundries and certain other service establishments have long been accustomed to employ women either for short daily hours or for the busiest part of the week, thus adjusting

the size of the labor force to meet anticipated daily and weekly fluctuations in public demand.

Though part-time employment in these industries is not new, the war has given it a new usefulness. The goods and services that many of these industries furnish are essential to the country's welfare, providing large numbers of the population with food and shelter, clothing and clothing upkeep. The fact that an exceptionally large number of homemakers are now employed outside their homes makes the facilities offered by the trade and service industries doubly important in wartime. Where all adult members of the family are actively engaged in the war effort, less of the usual household work can be done inside the home, and the burden on public eating places, commercial laundries, and other service establishments is necessarily increased. In some localities official recognition has been given to the essential character of certain of these industries by bringing them into the employment stabilization program, thus giving them the same status as war plants.

Much of the work in stores and the service industries is particularly suitable for part-time employment of women homemakers. Women are used to sorting, washing, and ironing clothes, serving food, trading across a counter, making change. They require little or no training for such part-time jobs; and because they are already familiar with the nature of the work they adjust readily to their new workplaces. Many jobs in trade and service industries can be carried on by part-time women workers to a very large extent, thus furnishing the public with much-needed services and releasing some women who worked regularly in these industries for full-time jobs in war plants.

At the time of the Women's Bureau survey in the spring of 1943, the need of women part-time workers was even greater in the service industries than in war plants. In most areas employers in war plants had as yet experienced little difficulty in recruiting women for full-time work, though in some localities they were faced with a shortage. Employers in the service industries were generally in a less fortunate position, especially in defense areas where they were often unable to replace women who migrated to war plants.

In many areas shortages in needed services were causing serious inconvenience. In some cities, hotels were reported to be closing their dining rooms for certain meals; restaurants needed waitresses, bus girls, kitchen workers, cooks; laundries and dry-cleaning establishments had curtailed their services, and some of them had been forced to shut down entirely; trade establishments needed salespeople, packers, cashiers, and elevator operators—to give only a partial list. The number of women available for full-time work in these occupations was rapidly decreasing. More and more women were needed for part-time work to relieve the growing labor shortage and maintain essential civilian needs.

Local United States Employment Service offices visited by Women's Bureau representatives stressed the fact that the immediate need for women to work on a part-time basis was in the service industries rather than in war plants. The report submitted in April 1943 by

the Bureau's representative in the Detroit area explains the situation existing in that important war manufacturing center at that time.

The Michigan office of the United States Employment Service advises there is no part-time employment of women in manufacturing plants—war or civilian—in this area. There is still a reservoir of women who want full-time work. There is still some in-migration. Factories here are advertising in the papers for common labor as well as for highly skilled operators. No mention is made of the need for part-time workers.

In the service industries and in trade, they advise, from 20,000 to 30,000 part-time workers could be absorbed. These industries have been losing heavily to manufacturing, during the last 3 months particularly. This is due to the marked difference in wages, and also because the prevailing factory hours are 48 as against 54 in restaurants and stores. In some firms in trade and service industries there has been considerable use of part-time women workers.

Reports received by the Women's Bureau indicate that though employers in many of these industries are anxious to obtain part-time workers, homemakers able to take part-time work prefer to work in war plants. Trade and service industries in many cities have made special appeals to homemakers to take part-time work. In addition to recruitment through public employment offices and newspaper advertising, many establishments have tried other publicity methods, such as circularizing the homes of customers, explaining the need for part-time workers and the advantages of part-time work. Among the special inducements offered are the arrangement of working hours to suit the convenience of the homemaker and the immediate placement on a regular pay basis without the delay of a training period. Nevertheless, in many areas too few homemakers have been willing to take these jobs.

Typical of this situation is the statement by the public employment office in a large eastern city in a defense area to the Women's Bureau representative in April 1943. Though the employment office in that city had a file of 600 applicants for part-time work, and though not one woman had as yet been placed in part-time work in a war plant, women were reluctant to take part-time work in service occupations. Cafeterias in war plants were willing to take all the part-time help they could get, but women were not interested in that work. Stores also were anxious to get part-time help for both sales and clerical work, and were willing to arrange the hours to suit the individual. The same situation existed in laundries and other service industries.

Homemakers able to arrange their household duties so that they can take a part-time job outside the home should realize that any needed job in an essential industry is, in reality, "war work." Civilian services must go on, and to maintain them at a wartime minimum is just as important as to work in war plants. In many cases a homemaker who has time only for part-time work can be of greater usefulness in a service industry than in a war plant; she may be able to do the work better and with less training; and by taking the service job she may release a regular worker for full-time work in a war plant.

Clerical Work.

One of the objections sometimes advanced to employing part-time workers is that it involves additional record-keeping or other clerical work. While the employment of any worker, part-time or full-time,

undoubtedly involves considerable clerical work, much of this work can be performed, in turn, by women employed on a part-time basis.

A large number of office jobs can be carried on by women with no special clerical training on a part-time basis. Such jobs include sorting mail, simple filing, checking, time recording, cashier work, sorting, and keeping certain continuous records. Other office jobs, such as bookkeeping, auditing, shorthand and typing, operation of comptometers and other office machines, require previous training and are suitable part-time jobs for women who did office work before marriage.

A number of war plants from which information on part-time employment was obtained by Women's Bureau representatives in April 1943 employed women on a part-time basis for clerical work, both in the office and as timekeepers in the plant. Usually this work was of a simple or routine nature, such as the job of mail clerk or file clerk. It was considered impracticable to employ part-time workers on elaborate office machines, as it was necessary to get maximum service from such machines by using them continuously throughout the day. One firm, which employed chiefly high-school girls on the part-time shift, reported that they could not afford to let the machines lie idle during the morning. By putting on a morning part-time shift and employing workers in "teams," one girl on the first shift and the other on the second, it would be possible to use part-time workers on such machines throughout the day.

In a survey of office employment in the summer of 1942, women were found to be employed in business offices at less than full-time work in numerous clerical occupations, such as telephone operator, biller and checker, proofreader, mail clerk, file clerk. Some of these workers, however, were employed only occasionally, as "extras," rather than on a definitely scheduled part-time shift. The growing labor shortage indicates that women who would like to do white-collar work on a regular part-time basis will find increasing opportunities to do so. Some of them will fill the places of men who go into occupations classified as essential or enter the armed forces. A large commercial bank, for example, has recently begun to employ women tellers on a part-time basis in all its branches. These women work 30 hours a week, from 10 to 3 daily, and are paid \$90 a month, the only training necessary being previous experience as a cashier in an office, theater, or restaurant.

Part-Time Employment in Providing the National Food Supply.

Women are needed for both full-time and part-time work in agriculture and the food-processing industries in order to assure an adequate supply of workers and maintain the Nation's food supply at the highest possible level.

Women without previous farm experience are showing by their performance that they can do many kinds of general farm work. On some farms women handle light machinery, run the separator and cooler, and operate the milking machines. Many of them feed and care for livestock and poultry. The various processes in the planting, cultivation, and harvesting of crops also are handled by women.

For obvious reasons, not all jobs that women can do on farms are suitable for part-time work. Those that require a general familiarity with farm conditions and customs, involving an extended period of orientation or intensive training, can best be handled by women em-

ployed on a full-time basis. On the other hand, women who can devote only part of a week or short daily hours to farm work can soon learn to do such jobs as preparing soil, planting seed, weeding, and hoeing. Their services are especially valuable also in picking fruits and vegetables, grading them, and packing them in barrels and boxes.

The extent to which women who live in towns and cities can be employed successfully for part-time work on farms depends to a great extent on the availability of transportation. In some areas community transportation can be provided for groups of part-time farm workers. Where the employment is near the city limits, as is often the case with truck farms, the city transportation system can be used. In any case, no woman who has only a few hours a day to devote to work outside her home should be required to spend most of it traveling to and from her place of employment. Except on certain types of farm work that require daily attention, it may be more practical for the worker, if there is much traveling to be done, to put in 2 full days over the week end rather than short hours on a daily basis.

In the canning and food-processing industries women have always been employed extensively, for both full-time and part-time work. In the fall harvest season of 1942 many canneries were able to add a half day to their daily operating time by employing an extra part-time shift of women who came at the plant's regular closing time in the late afternoon and worked through the evening. The services of women not available for full-time employment who can devote a few hours a day to an outside job can be utilized effectively in canning plants, thus adding to the Nation's food supply by preventing products from spoiling.

WOMEN WORKERS' NEED OF COMMUNITY FACILITIES

Women with family responsibilities who accept employment outside the home in reality have two jobs. Most of them continue to carry the major responsibility for keeping up the home, shopping and marketing, cooking, cleaning, and caring for the children. Even if the outside job is on a part-time basis, it puts an extra burden on the homemaker and necessitates many far-reaching adjustments in her domestic and personal life.

During the war period, employers and communities are gradually becoming aware of their opportunity—and duty—to assist the employed homemaker to carry this double load. Some employers are arranging their work schedules wherever possible to meet the convenience of the woman worker, particularly where the work is performed on a part-time basis. A few plants have installed shopping facilities in the plant, and others give workers regular time off for shopping and marketing. In many localities stores have made some attempt to adjust their hours so that workers can trade in off-duty hours. Day nurseries have been set up in some communities, though often in inconvenient locations and in insufficient numbers.

Though scattered attempts have been made to develop facilities and services to assist employed women, the progress made to date in this country is only a beginning. Homemakers must have a great deal more assistance with their domestic work if they are to carry on their wartime jobs effectively and make their fullest contribution to the

war effort. This is true whether they are on part-time or full-time work, the difference being one of degree and not of kind.

In Great Britain every effort has been made to lighten the domestic responsibilities of women homemakers so that their services can be used in war work to the greatest possible extent. Until February of this year, women with heavy domestic responsibilities were not subject to the compulsory work orders, but were encouraged to take part-time jobs and give as much of their time as they could spare. Special arrangements for care of children, shopping, food, and other services are available to women who do part-time work as well as those who have full-time jobs.

A British report explains the importance of adequate community facilities to the part-time worker.² Excerpts from this report follow:

The only large reserve of womanpower still available is to be found among the women with domestic responsibilities who can only be brought into war work on a part-time basis and whose recruitment depends on the existence of suitable schemes of part-time work and adequate arrangements for transport, shopping, the care of children and the provision of meals on a communal basis. At the present stage of the mobilization of womanpower, therefore, the problem of the Ministry of Labor and National Service is to insure that the best possible use is being made of the women already in war work . . . and that women with domestic responsibilities are brought into part-time employment as rapidly as possible either on direct war work or as substitutes to release war workers.

The fuller mobilization of women with household responsibilities for part-time employment and the voluntary recruitment of women with young children . . . involves the provision of new war nurseries and improvements in the arrangements for providing meals for children of school age away from home and for the communal feeding of war workers in factory canteens and British Restaurants.

Care of Children.

Wartime nurseries.—Provided by the Maternity and Child Welfare Authorities.

Daily Guardians.—A scheme for Registered Daily Guardians. . . . Any woman who wishes her children under five years of age to be taken care of while she is working, may place them in the charge of a person who has been registered by the Maternity and Child Welfare Authority for this purpose. She will be free to choose the person with whom she will place her children provided the Guardian is one who has been registered. The mother makes her own arrangements as to rate of payment to the Guardian, but the Guardian is also paid a weekly sum by the State.

Nursery Schools.—For the case of children under five, existing nursery classes in elementary schools have been extended, and new classes are being set up. . . . The age of admission . . . has been reduced from 3 to 2 years, and the hours of opening lengthened to provide for the care of children during the whole period their mothers are at work.

Play Centers.—To meet the needs of older children, schools are opened at 7 or 8 in the morning and kept open until 6 or 7 in the evening . . .

Some Arrangements To Meet Shopping Difficulties of Women.

The shopping difficulties of war workers vary according to districts . . .

Wherever practicable the concession of time off for shopping has been found to be the most satisfactory solution. Firms make their own arrangements but it is the practice generally to allow women workers 1 half day a week or alternatively 1 or 2 hours off twice a week. Where the factory is situated near a shopping center an extended lunch hour may meet the difficulty. Local retailers cooperate when necessary by arranging to close their shops at a different hour at lunch time from that of the factory to avoid overlapping. . . . Some of the other schemes now in operation are:

² Aspects of British Woman Power Policy. Supplementary note on developments in policy between May and October, 1942. Released by British Information Services.

Priority cards issued by factories to workers for lunch hour shopping—retailers cooperate.

Workers allowed to reregister for rationed goods at shops near the factory . . .

Shops remain open late 1 night a week for workers only to shop. This has not proved a very successful scheme as women war workers with other domestic duties to perform are naturally anxious to reach home as soon as possible when they finish work.

Factories arrange shifts so that women can always shop, either morning or afternoon.

Shops keep a fair share of unrationed goods for workers.

To make possible the most effective utilization of women and permit women to make their greatest contribution to the war effort, the Women's Bureau recommends as an imperative necessity the development of community facilities to meet the needs of employed women, including adequate provision for child care, laundry, marketing, shopping, and other household duties.





W H E N

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W O M E N

U. S. DEPARTMENT OF LABOR

Women's Bureau

Special Bulletin No. 14

1944

MAR 21 1944

FOREWORD

This is addressed to employers hiring women for production jobs.

The women workers coming into industry now are chiefly inexperienced so far as factory work is concerned, and many women are wholly without work experience of any kind.

The examples were chosen to illustrate how some employers have met specific problems, but they will not be *the* answer for every individual employer. In most cases the examples have been selected from Women's Bureau schedules of plants visited.

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The Women's Bureau will send on request its complete list of war publications. Occupational surveys have been made of the following war industries: Aircraft assembly and aircraft engines, artillery ammunition, instrument-making, machine tools, cannon and small arms, steel mills, shipbuilding and naval repair. Various other industries were included in a State-wide survey made in New Jersey in 1942.

Single copies of special bulletins and all mimeographed material may be obtained from the Women's Bureau of the U. S. Department of Labor. Larger numbers of bulletins may be ordered from the Superintendent of Documents, Washington 25, D. C., at prices listed. A discount of 25 percent on orders of 100 or more copies is allowed.

Women's Bureau pamphlets on standards for women's working conditions (and related subjects) include the following:

Lifting Heavy Weights in Defense Industries. Spec. Bul. 2. 5 cents.

Safety Clothing for Women In Industry. Spec. Bul. 3. 10 cents.

Safety Caps for Women in War Factories, with illustrated supplement.
Spec. Bul. 9. 5 cents.

Washing and Toilet Facilities for Women in Industry. Spec. Bul. 4.
10 cents.

Women's Effective War Work Requires Time for Meals and Rest. Spec.
Bul. 5. 5 cents.

Night Work for Women and Shift Rotation in War Plants. Spec. Bul. 6.
5 cents.

Women's Effective War Work Requires Good Posture. Spec. Bul. 10.
5 cents.

Hazards to Women Employed in War Plants on Abrasive-Wheel Jobs.
Spec. Bul. 7. 5 cents.

Effective Industrial Use of Women in the Defense Program. Spec. Bul. 1.
10 cents.

Absenteeism. (Mimeographed.)

The Woman Counselor in War Industries—An Effective System. Spec.
Bul. 16. 5 cents.

Standards for Maternity Care and Employment of Mothers in Industry.
(Multilithed.)

WHEN YOU HIRE WOMEN

Today women—hundreds of thousands of them—are at work in war industries. Unafraid of the hard, tedious, and dangerous jobs, they are working in shipyards, in aircraft and instrument factories, in arsenals and steel mills.

World War II, with its great influx of women into jobs previously marked "men only," presents both management and labor with many new and puzzling problems. Employers may benefit by reading of the successful experiences of others in employing women, and the essential steps in successful induction and utilization of women in war industries, that are presented in this pamphlet.

"We didn't want women, but now they're here we've found they are just as fast and just as capable as the men. They are all right."

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- First** —Sell the idea of women workers to present employee staff—the foremen and men workers.
- Second** —Survey jobs to decide which are most suitable for women.
- Third** —Make adaptations of jobs to fit smaller frames and lesser muscular strength of women.
- Fourth** —Provide service facilities in the plant to accommodate anticipated number of women.
- Fifth** —Appoint a woman personnel director to organize and head a woman-counselor system.
- Sixth** —Select women carefully and for specific jobs.
- Seventh** —Develop a program for the induction and training of women.
- Eighth** —Establish good working conditions.
- Ninth** —Supervise women workers intelligently.
- Tenth** —Give women equal opportunity with men.
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WHEN YOU HIRE WOMEN

FIRST—Sell the idea of women workers to present employee staff—the foremen and men workers.

The foreman's cooperation must be secured; men workers' cooperation should be won before women are employed.

One company determined that its major labor shortage lay in the skilled occupations and that they would begin the employment of women by seeking women of ability to train for skilled jobs. They called together the men who did the skilled work, explained the situation, promised each man as good or a better job if a woman took over, and asked each man to bring a woman relative whom he regarded as capable of holding his job. It became a matter of pride on the part of each man to have his woman substitute succeed, so no effort was spared in teaching her his work. The company has developed a nucleus of skilled, respected women and is regarded as an excellent place in which to work by both men and women.

A shipyard called its foremen together, the labor stringency was discussed, and the foremen themselves decided it was advisable to employ women. They in turn sold the idea to the men in their respective departments. Though this yard had been strictly a male domain, the men have been exceptionally cooperative. Another shipyard distributed to every foreman mimeographed material which contained the statement, "Half the people in the world are women—your mother, wife, sister, daughter. The women who are coming into the plant are just like them."

A special training program for the supervisory staff of a large chemical company emphasized two points—(1) the necessity of bringing women into the operative jobs, (2) the necessity of the foremen making the women feel that they were really helpers and not just nuisances.

Sometimes foremen and fellow workers need to be shown that women can do the job before they will cooperate.

A machine-tool plant chose from its factory workers one woman who seemed to show the most promise. She was used as a "laboratory experiment," the director said, with the idea that if she succeeded she could then act as a supervisor or women's counselor in case a large number of women were hired. This woman was tried out on one job after another on a wide variety of machines. The director reported that she was successful in almost all of them. As a result, the company foremen were convinced that women could successfully undertake almost any of the jobs that had been performed by men.

In an aircraft plant, the foreman of a department where the two first women to be hired were placed said, "I honestly don't believe any of us expected them to last the day. The office had talked me into taking them on, and I agreed with the leadmen that we'd give

them a fair trial. And we meant 'fair trial,' no special favors, no babying. These two girls came in. I handed them each a bucking bar, teamed them with a couple of good guys, and told them to get busy. When I walked by an hour or two later I expected to see a couple of tired girls. I was pretty surprised to find the girls had the guns, and the boys were bucking for them. Next day I teamed the girls together, and they're still at it, doing as well as anyone could ask." The performance of those girls sold that foreman on the use of women.

In another establishment, where the superintendent of the plant realized early that he would need to recruit women, the following incident was reported. When the first women taken on had been trained, the foreman of machine work rushed to the superintendent and said, "Where have I been all these years? Why, these women are easier to train than men and can do finer work."

SECOND—Survey jobs to decide which are most suitable for women.

Base choice on successful experience of other firms, and on outstanding characteristics of women.

The Women's Bureau has records of women's success in specific types of jobs in many industries covering many years. It is studying current experiences every day. These data are available on request to those who need them for war service or an essential civilian activity. Application of others' experience, however, must take into account the conditions of operation in each plant. Women's Bureau representatives are available to a limited extent to give immediate assistance.

In an excellent job analysis in a gun plant, the following procedure was followed: Women were asked to lift repeatedly weights of varying amounts while in a sitting and in a standing position. The results were plotted and it was found that fatigue was noticeable at the point where 18 to 21 pounds was lifted from 20 to 25 times an hour. Eighteen pounds was set as the limit for women where direct lifting of parts, fixtures, and arbors was done repeatedly. Another test was made by the company on operations where parts and fixtures had to be slid on the machine bed, not lifted. It was found that when the boxes were handled only occasionally, 35 pounds was not too heavy for women to lift and this amount was fixed as the limit under such conditions.

A chemical company in the fall of 1941 undertook a survey of jobs in its many plants, when it decided women probably would have to be employed, and investigated the experience of other firms that had employed women for years in communities where the company had plants. The survey of its own jobs brought out in detail the description of each man's job, whether it could be filled by a woman, and if so, by a slight or a moderately husky woman. The survey noted such factors as (1) the location of the job (to guide the plant personnel department in its placement of women to work in pairs, as no woman would be assigned singly to a department otherwise staffed with men);

(2) whether the building was in an isolated area of the plant; (3) the distance of the job from the proposed location of women's washrooms; (4) type of work-companions the women would have; (5) whether the manufacturing divisions were indoor or outdoor; (6) the general working conditions; (7) hazards; (8) fatigue factors; (9) whether the employee was required to stand most of the time. On completion of the survey, jobs were classified as to degree of practicability for women: Class 1, most easily filled by women, such as those requiring skill of hands or quickness of action; and Class 2, less desirable for certain types of women, such as those involving heavy work.

THIRD—Make adaptations of jobs to fit smaller frames and lesser muscular strength of women.

Adapting the job to women may mean re-engineering, job break-down, or both. Women's work must be done without strain or undue fatigue if they are to be employed continuously.

A drill manufacturer installed a conveyor system, electric-button controls instead of levers and wheels, platforms to bring about better relation of arm to machine-bed.

A steel-castings foundry eliminated much heavy lifting by reducing the size of shovels, dumping carts, and sand buggies, and installing chain hoists.

A machine shop designed fixtures and bench vises to hold parts for filing that formerly were held by hand.

An engine-parts manufacturer broke down operations so that light work could be segregated from heavy work.

Engineers of a machine-tool company put a new lever on a special spinning lathe so that it could operate with 70 percent less exertion than before.

An aircraft plant that had steel jigs too heavy for women to lift replaced them with masonite jigs weighing less than one-tenth as much.

Suspending an air-operated wrench from a counter-balanced support eliminated the necessity of lifting and handling it. A woman replacing a man in the use of the wrench was able to operate two such wrenches simultaneously instead of the one formerly operated by the male employee.

FOURTH—Provide service facilities in the plant to accommodate anticipated number of women.

Service facilities are related directly to the most effective utilization of women.

Washrooms and locker rooms, toilets, and rest rooms should be planned for, after consulting standards recommended by authorities in these fields. The Women's Bureau calls attention to the recommendations of the American Standards Association in these matters, and to leaflets of the Bureau that set forth the standards together with observations based on the Bureau's investigations of working conditions of women.

In a foundry that took on a considerable number of women, the second floor of the men's recreation building, which is adjacent to the foundry, was converted into a rest room for women. The rest room is spacious and airy, having many windows. One end of the room is furnished with comfortable chairs, several davenport, and tables. The back of the room contains the lockers, toilets, and showers. In addition, toilet and washroom facilities have been built at intervals in the plant, either by partitioning off floor space or by constructing a balcony washroom.

A shipbuilding company has provided excellent rest rooms for women. They are clean, have leather chairs and lounges, tables where lunches may be eaten. The washrooms also are clean, well lighted, ventilated; many washbasins, hot and cold water, soap and paper towels, mirrors; metal lockers. Toilets are enclosed.

In a steel plant considerable thought is given to providing facilities for women, though in the various mills scattered throughout the large area, some of the units are new and roomy and some are not. A few have been built up above the main floor, but are approached by railed and well-guarded stairs. One had to be built at considerable height (two flights of stairs, steep but safe). All have proper equipment and are kept clean. In one of the mills there is the following example of combined service facilities for women: One room has toilets, washbasins, and a large spray-fountain; another has showers; a third, many full-length mirrors. The rest room is carpeted, has two chaise longues and two easy chairs, a long shelf and mirror. Another room has a long table for the use of the girls at lunch; a deep sink where the girls keep their soft drinks cool in water; and a 2-plate electric hot plate for cooking. All rooms have tile walls, linoleum floor covering, good light and air, and are cheerful and attractive. Even the smaller, more makeshift facilities of this company are so arranged and divided that there is a little rest room and place to eat and to cook separate from the toilet and locker-room spaces.

A chemical company had to start from scratch to provide the necessary service facilities for women. This involved remodeling present structures or units, or erecting frame structures similar to the old wooden schoolhouse with the cast-iron stove in the middle. Lockers provided for women were larger than those for men because of bulky coats and additional garments women wear. Shower stalls were partitioned or curtained. Make-up cases, odds and ends, and other incidentals were provided, especially mirrors; the assistant director of industrial relations said, "A man can put on his tie or comb his hair reasonably well by looking in a window, but a woman must have a mirror or she is most unhappy."

In a steel mill where matrons go constantly from one toilet to another to check on cleanliness, the Women's Bureau agent reported that all were in good condition. In another, a matron in each washroom has charge of seeing that supplies are on hand always and supervises the cleaning of the room (all very clean).

In an aircraft plant, all the toilets are sterilized several times in each 24-hour period, after each meal period and after each change of shift. Very thorough inspections are made of the cleanliness of the rest rooms.

FIFTH—Appoint a woman personnel director to organize and head a woman-counselor system.

The head of women's personnel and the woman counselors must be given well-defined status and duties that are accepted by department heads, foremen, and unions and made known to men and women workers.

Employment of large numbers of women with no previous shop experience at a time when foremen are overwhelmed with production problems necessitates a decentralized personnel service to adapt women to factory conditions and cope with many matters that cause absenteeism and labor turn-over.

A large ammunition plant, with thousands of women employees, put into practice an effective counseling system, with a director, assistant director, area [roving] supervisors, and consultants [counselors]. There were two consultants in each building and on each of the three shifts; they rotated with the shift in order to remain with the same group of workers. The consultants assisted in induction of new women workers, job transfer, transportation and housing problems, child-care and other personal difficulties, and conducted exit interviews to discover causes of turn-over and if possible prevent terminations.

Appointment of a woman as the assistant personnel manager is the plan of a large company for each of its plants. Where it is impossible to carry this out, either because of the small number of women workers or inability to obtain immediately the proper type of woman for such position, the company's assistant director of industrial relations—a woman, who is in charge of the whole program for employing women—tours the plant at intervals, acting as counselor to the women employees, to hear any complaints they have and to advise them on their work activities. On these trips her arrival time is made known in advance to the women employees. She then transmits to plant managers, either with or without identification as the case may warrant, any situation that requires plant-management attention, with a copy of her report going simultaneously to the head of industrial relations for the company. Her report on her next trip to the plant will indicate whether her recommendations have been acted on. In selecting women for the position of assistant personnel manager, the policy is to avoid the dean-of-women, housemother, or chaperone type.

In one aircraft plant the assistance given by woman counselors to new women employees includes loans (granted after investigation) for lodging, food, and transportation until receipt of the first pay check.

In some plants counselors have given the shopping problem their immediate attention, as women employees reported this a reason for absenteeism. In one instance they called on grocery stores in nearby towns, where most of the women workers lived, as a result of which the stores take turns staying open evenings. In more than one instance a shopping service has been set up in an establishment on the outskirts of a city, so that merchandise orders based on daily news advertisements can be left and filled; packages are delivered to this

office, where the women pick them up. In at least one case a shoe-repair service operates in the same building.

SIXTH—Select women carefully and for specific jobs.

Determine what requirements the job makes of the employee.

What is demanded in terms of height, long reach, strength, steady nerves? Does it call for alertness, judgment, manipulative ability, speed? Is it a noisy, dirty job and is the worker exposed to all conditions of weather?

One aircraft plant gets out a daily requisition sheet stipulating the physical requirements of the job, which is used by the intake interviewer. The employment office of the plant issues this sheet, showing departments and occupations where new workers are needed (indicating numbers required, priority rating of jobs, and shifts on which shortage is reported), with the general classifications under which all applicants are to be coded, as follows:

Worker is capable of—

- A. Heavy sustained labor.
- B. Moderately heavy labor.
- C. Light labor.
- D. Very light labor.

There are modifying codes qualifying the foregoing. These follow:

Condition of worker:

- 1. Has monocular vision or severe visual defect.
- 2. Has severe defect of hearing.
- 3. Should have partial sitting.
- 4. Is capable of sitting job only.
- 5. Has poor coordination.
- 6. Has nervous instability.
- 7. Has sensitive skin.
- 8. Has one arm.
- 9. Has hernia.
- 10. Has tendency toward developing hernia.
- 11. Has history of back strain or injury.
- 12. Has chronic illness (cardiac lesions, nephritis).
- 13. Has apraxic characteristics (senile).
- 14. Has arrested TB, asthma, chronic bronchitis.
- 15. Unsuitable for climbing, working around dangerous machinery (by reason of age, weight, or other—diabetes, epilepsy, hypertension, or leg defects).

No woman is given the "A" rating, because of the heavy manual work required under this classification. Ratings are assigned by the intake interviewer. The physical examination itself is not given the applicants until after they are hired—and the plant physician reports surprising accuracy by the interviewer in classifying them.

Applicant should be given a preemployment physical examination.

From this can be determined (1) physical condition of applicant, (2) fitness for work, and (3) types of work on which applicant can be placed. Plant doctors give an

examination that usually includes blood and urine tests, skin examination, sometimes X-ray of the chest, and whatever additional tests are called for to meet various job requirements and protect the woman worker. It should be sufficiently thorough to discover physical defects, such as bad pelvic condition or varicose veins, that make some types of job hazardous. A few jobs are more hazardous to women than to men, especially where certain chemicals are used. The medical history of the applicant should be on record.

For crane operators in a navy yard, special eye and ear tests are given to women, with emphasis on depth perception, a neurological examination, and blood pressure.

A shipyard that has a rigid preemployment examination, including the Wassermann test, sends positive cases to the State health clinic, and a strict check on visits to the clinic is kept by the head of the company's hospital. In a navy yard, if the Wassermann test is positive, the applicant has the choice of going to a private physician or to a clinic for treatment.

A steel mill has a strict medical examination for applicants, checking eyes, ears, heart, lungs, blood test, and for hernia and other diseases or effects of diseases. Another steel company reports a similar rigid preemployment examination which, when combined with the study made of all jobs as to fatigue, and weight to be handled, enables the company to select the proper person for the job. "A person thoroughly able on one job might soon give out on another job."

In an aircraft engine-parts factory, the preemployment examination is a general physical with special emphasis on eyesight, since so much of the work is close inspection that requires good vision.

A rubber-products plant examines eyes, takes Wassermann, checks heart and lungs, and records medical history. There is a follow-up of all persons who appear anemic.

Manual dexterity and intelligence tests may be given applicants, but they are used only as an aid to personnel selection.

High-scoring women should be placed on work that will use their mental abilities and so not bore them.

Industries long employing women, such as electrical-products manufacturing, have used aptitude tests for a number of years. Among the new war industries, many aircraft companies are using such tests in selecting women workers, employing experts in the field, and unusually successful placement has resulted.

A shipyard gives a mathematics test to determine ability to add, subtract, multiply, etc. An aptitude test consisting of 53 questions also is given. The average grade (at time of report) was 65, but if a woman makes over 50 she is considered capable of assimilating facts and of analyzing, and is given 3 days' further indoctrination in shop crafts.

In another shipyard, IQ and mechanical tests were said to be very helpful, the latter being used only as indication of manual ability. The company reports high correlation between test results and successful placement.

A machine-gun plant gives applicants tests for intelligence, aptitude, and personality. The company is satisfied with the practice and continues them; at present they are used to sift out the misfits. "Both those who do very well and those who do very badly are queer and need careful placing."

A series of tests for classifying new workers is given by a steel mill; over 1,250 women have been given the series. Scoring is by a definite scale of values, so bias of the checker is eliminated.

A shell-loading plant for 40-mm. shells gives a dexterity test after the applicant is interviewed and the women with the highest rating are sent to the fuze area, where there are many small hand jobs such as assembling detonators.

Family responsibilities of women should be taken into consideration.

The interviewer should know what home duties the woman has, and if possible place her on the most appropriate shift. Employment of mothers of children under 14 is strongly opposed by authorities. If they must work, their placement on the day shift is recommended. Mothers should be questioned closely as to whether adequate provision for the care of young children has been made. Harassed mothers make poor workers.

A large chemical company, in making plans to hire women in its various plants throughout the country, reported that its first women employees, if married, are those without small children; if women with small children are hired, the personnel department makes sure that the children are adequately and consistently cared for while the mother is away. It also tries to keep mothers on the day shift only, if at all possible. Plants that hire women with children find it difficult to avoid high absenteeism "because the women, and rightfully so, regard their responsibilities to their home or children as greater than their responsibilities to their employer."

In an ordnance plant employing thousands of women, the final hiring of a mother is not completed without checking with the various child-care agencies in the city to see that the children of this mother are actually enrolled or have been provided for in an approved manner.

The intake interviewer in a shipyard inquires how many children the woman applicant has, their ages, what care has been provided for them; the mother is given definite information on day-care programs for children available in that area.

SEVENTH—Develop a program for the induction and training of women.

A friendly introduction to the plant and its personnel will go far to ease the strain of adjustment to new environment, new work, and new associates.

Many women employees have never been inside a factory before, they may be frightened and disturbed by machines

and noise, and the majority naturally will lack self-confidence.

A chemical company has in one of its plants a 6-day induction program for all women. They are told about the company's products. Talks are given on policies and procedures of the company—its employment terms (for the duration of the war only), secrecy about the job, insurance policies and opportunities, dismissal compensation, as well as wage-progression rates, hours of work, shifts, rest periods, reporting of injuries, safety rules, housekeeping. These talks alternate with tours through the buildings so that the women will learn about the plant and about their jobs, though actual work instruction is given on the job itself. The women are reassured about the attitude of their male coworkers, that the men will not resent them. The last two days are devoted to fire-drill instruction and a review of the week's program, with an individual check on memory of operations; the applicant is graded on her examination. The woman applicant is taken into the plant by the personnel representative and is shown the job for which she is being considered, to obviate the possibility that she will accept and then suddenly discover that she doesn't like the job or surroundings and check out. This procedure is said to reduce turn-over.

A shipyard has its newly employed women spend the first day learning company policy and procedure. They are given talks on safety and hygiene. Talks and films both are used and time is allowed for questions. Foremen have asked that this policy be adopted for men also, as they say that women start in to work better than the men.

Some of the major points that an induction program should include—carried out by those in charge of personnel, woman counseling, safety, training, and health—are as follows:

1. Explanation by personnel official as to company policies and procedures—such as hours of work, shifts, time clocks, how wages are paid, and so on.
2. Talks by woman counselor head to women workers on their attitudes and responsibilities in the factory as workers (for example, importance of regular attendance), relations with fellow workers, and an explanation of woman counselor's function. Personal hygiene should also be discussed.
3. Talks by plant doctor on health, and by safety official on safety habits and safety rules of the plant.
4. Films (on job processes; safety illustrations; good work habits; company's product).
5. Questions encouraged.
6. Plant tour, emphasizing importance of each job operation to the war product manufactured.
7. Women workers assigned lockers, shown first-aid room, rest room, and lunchroom, and told about uniforms if required.
8. Handbook distributed, containing information on plant policies and safety rules, and other useful information on women's health.
9. Women workers introduced to foremen by woman counselor.

Job training should be such as to assure that each woman becomes a safe and efficient worker.¹

Wherever possible, both preemployment and preassignment training should relate to the job to be done.

New women workers resent being taught one type of work and then being assigned to another type in the shop.

Though school training may be excellent, it rests with the foreman to teach the specific job and working methods that will insure standards of quality and quantity.

As the majority of women are without knowledge of the subject, foremen should explain what has to be done, why it must be done, and how to do it.

One shipyard places workers with low test scores on simple jobs, but the others are given a 6-day course in nomenclature, tools, phraseology, and the requirements of future assignments. They are then assigned by groups to vestibule schools for an additional 2-weeks training. They operate power tools and familiarize themselves with the elementary fundamentals of shop operations. On completion of the 2-weeks vestibule training the women are assigned to shops for productive work.

A large paper mill, realizing that women who have never worked before start out under an emotional strain, believes that "just plain kindness" during the training period hastens the adjustment.

Job instructors in the plants operated by a chemical company explain the work to women slowly, point by point, and with considerable patience. They point out all hazards but they are careful to do it in such a way as not to arouse in the employee a feeling of overanxiousness or nervousness.

At one shell-loading plant, new employees are first shown films of all operations with accompanying lectures. Safety rules are given and discussed, and a tour is taken through the plant to observe actual operations. Trainees are then divided into groups according to job preference and again films are used on specific jobs with lecture and discussion on details. New employees are then placed with old employees, but they must work for a minimum of one week with inert materials before going on jobs involving explosives. Each new employee is closely supervised for from 3 to 5 weeks after employment.

One aircraft plant says that women get most out of a training period if it is conducted by an older woman, for the following reasons:

Women are less dismayed by criticism from another and older woman than they are if it comes from a man.

Women learn more readily and are less inclined to become discouraged when they can work with women who have already achieved skill in the same job operations.

¹A good deal of literature has been issued about training, and Government agencies in charge of specialized programs stand ready to offer assistance at all times: In the War Manpower Commission are the Training-Within-Industry Service offering job-instructorship training, job-relations training, and job-methods training, and the Apprenticeship Training Service; also the U. S. Office of Education, which supervises Nation-wide Vocational Training for War Production Workers, and Engineering-Science-Management War Training.

The transition into factory life is less abrupt for the average woman if she is working with a group of women and under the direction of another woman.

The following paragraphs are taken from general instructions issued by the Office of the Assistant Secretary of the Navy:

Get off to the right start in teaching the women. They are impressionable. The first few hours may establish their attitude toward their work. Be kindly, businesslike, and make them feel that the work they will do is important.

Since the women are unfamiliar with terminology, encourage them to ask questions, and give them considerable drill on the names of machines, machine parts, and operations. Use visual instruction—diagrams, pictures, slides, films, actual models and demonstrations whenever possible.

Plan to have patience in teaching women * * * They are sensitive to criticism of their work. * * * But experience has shown that women are anxious to do well, conscientious, and appreciative of assistance and instruction.

Women like to know what they are doing and why. If it is not a military secret, give them broader explanations or reasons for their job. Relate it to things they understand.

Women need more safety instruction than men because of their lack of familiarity with tools and machines. Relate such instruction to experiences they understand. Once they understand the regulations, they are more careful. Their safety records are higher than those of men.

EIGHTH—Establish good working conditions, effective in reducing turn-over, improving morale, and recruiting new women workers.

Working schedule.—The maximum 8-hour day and 48-hour week, with 1 day of rest in 7, has been advocated jointly by eight Government agencies, including the War and Navy Departments, as best for both men and women and conducive to the highest output when employees must work under pressure or over a long period. The 7-day workweek is injurious not only to health but to morale and to production. If the daily and weekly hours are too long, the rate of production tends to decrease and the quality of work to deteriorate. Rest periods of 10 to 15 minutes also should be provided, in the morning and afternoon. Chronic fatigue among women workers is reported to be increasing.

Seats.—Where possible, women should be provided with chairs, built on posture lines and adjustable to both the worker and the job. In many cases jobs could have been

done seated but the employer gave no consideration to seats in planning the job set-up.

In an aircraft plant, management tries to see that women may sit properly at work on every job that can be done seated. A frequent practice is to have seats available even if women can sit only part of the time.

In a hosiery mill not all operations can be done seated, so chairs are placed about the plant for the occasional rest of employees who must stand at their work.

In a rubber-products plant, the use of chairs resulted in 16 girls doing as much work as 20 had done before.

In one establishment there was an increase of 2 to 13 percent in output when workers alternated standing and sitting.

Work clothing should be suitable. If jobs require safety clothing, wearing it should be compulsory.

If women are told on taking the job that a specific type of clothing must be worn, there should be no difficulty concerning clothing. If women have already been employed before clothing rules are established, committees of women workers should be appointed to work on this matter with safety experts.

Safety-clothing essentials are, first, safety; and second, convenience, wearability, comfort, cleanliness, suitability as to warmth. Safety clothing is not necessarily a uniform. The "dress" may be slacks and blouse, or coveralls. Caps are necessary around moving machinery. Safety shoes, goggles, gloves, also may be required for certain jobs. Safety clothing is designed to protect the worker from the hazards of the job or the environment, or from dusts and poisons in the materials used.

Specific styles of work clothing have been adopted in some plants after consulting employees through a woman's committee. A choice of colors may be permitted; on the other hand, there are plants where color indicates department. For convenience in obtaining the required uniforms, a salesroom should be arranged at the plant office.

In a large small-arms-ammunition plant where safety clothing is required only in certain areas, the company furnishes and launders the uniforms, which are changed daily. Safety shoes also are provided, the company paying part of the cost. [Some companies supply safety shoes free when special kinds are required.] Goggles and goatskin gloves are provided for all employees where the job requires them. Blue denim aprons are furnished and laundered for all women who will wear them, but some prefer their own kitchen aprons. The women do not like standard uniforms and the company is opposed to regimentation in the matter unless hazard is involved. New women employees are requested to wear slacks, but compliance is voluntary.

In another company, a standard uniform suit was chosen by the woman assistant director of industrial relations to be worn by all women in its various plants throughout the country "to meet the feminine psychology and physiology and at the same time be entirely practical from the standpoint of wearability and in accordance with requirements of safety engineers." Employment is conditioned on wearing the uniform, this policy being established before the first woman was hired. Many women work overhead, and there is much running up and down stairs and climbing ladders. The two-piece slack suit can be worn by women of broad or narrow hips; it has safety cuffs buttoned snugly around the ankles. The jacket has a form-fitted top with action-belted back, and a slightly flared peplum that comes below the hips, cutting off the broader aspects of the slacks. The jaunty cap has one peaked side with a place for the photo identification button to be worn as an ornament; it is worn with the hair out unless the job is around moving machinery, when the hair must be tucked in. The uniform is sold at cost to the employees.

NINTH—Supervise women workers intelligently.

Careful supervision, after the training period is over, to aid adjustment to job and to discover lack of understanding of operations, is good policy for any new worker.

Foremen and leadmen may need special training if they are not experienced in supervising women.

In a shipyard, after training in the vestibule school and assignment to job, the new employee remains under the jurisdiction of the training department for 30 days so that if not adapted to the work of the shop to which assigned, shifts may be made.

The following paragraphs are taken from general instructions on supervision of women, issued by the Office of the Assistant Secretary of the Navy:

Proceed slowly for about the first two weeks. After they lose their fear of the machines, and after they become accustomed to the noise and vibration, they may be quicker than men in their work.

Help women who have never worked in industry build confidence in themselves. Help them see that they can do the job successfully, that they need not feel "dumb."

In your effort to be kind, don't do a woman's work for her or she will become bored. Help her to do it well by herself.

A foreman should be tactful, wise, and understanding in his treatment of women workers. He should be able to soothe ruffled feelings as well as to administer first aid. Women are inquisitive and willing to learn. For a competent and tactful foreman, they will be loyal and conscientious.

After the women are inducted properly, give them no special privileges other than those relating to physical limitations.

The Industrial Personnel Division of the Headquarters Army Service Forces emphasizes these major points on supervision in its "Guide to the Immediate and Maximum Utilization of Womanpower":

Good practices in the supervision of men employees can be used with success in supervising women.

Supervisors should take into consideration some important differences between men and women, as for example:

Women resent any evidence or appearance of favoritism.

Women require closer supervision when assigned to tasks involving unfamiliar mechanical equipment.

Special promptness in dealing with women's grievances is essential.

Follow-up in matters of health, safety, and personal adjustment should be carried on to detect any misunderstanding or non-observance of rules.

Expansion of health services may be necessary.

Weekly talks on safety regulations, including safety clothing, and on personal hygiene and better health habits are the practice in many cases.

There should be medical supervision of women who are suffering from any physical disability such as varicose veins, and follow-up physical examinations for such workers to see if the job is proving harmful in the light of the specific disability, with recommendation for transfer to other work where necessary.

A suitable place should be provided where women can lie down for short periods. This policy is especially beneficial in reducing absenteeism at time of menstruation.

A program of physical conditioning of women through exercises may be necessary.

An aircraft factory considers that calisthenics are an essential part of conditioning a woman to meet the requirements of certain jobs. The program is intended to accustom muscles gradually to constant use on the job, as well as to build up general physical resistance to fatigue and colds. The woman is prepared to expect soreness and stiff muscles as a normal but temporary condition.

There should be set up a clear policy about work for pregnant women.

In an aircraft-engine plant, women are required to report to the medical department as soon as pregnancy is certain so that they may be placed on work that will protect them from any possible harm to themselves or the child. From reports obtained from each woman's own physician at regular intervals the company physician determines and requests job changes or shift changes as indicated. Facilities are available for check-ups by the company physician. When women are forced to stop work because of pregnancy their employment is terminated but if they wish to return to work every consideration will be given their application.

A navy yard has the following policies regarding women who become pregnant after their initial employment (women who are pregnant when they apply for work are not hired): Pregnant women are not to be employed on the graveyard shift and under normal circumstances

will not be assigned to the swing shift. They shall not be given assignments that involve heavy lifting or other strenuous work that requires agility, endurance, continuous standing or sitting. They shall not be placed on work that calls for a good sense of bodily balance, such as on ladders, scaffolds, and so forth. They shall not be placed on work involving exposure to toxic substances considered to be extra hazardous during pregnancy (list of these is given), and other toxic substances that exert an injurious effect on the blood-forming organs, the liver, or the kidneys. They must submit a statement from their own doctor that continued employment will not adversely affect their health.

In a factory where a pregnant woman was to be discharged by her foreman, the industrial nurse took the matter to top management over the foreman's head presenting the Government's pamphlet issued by the Women's Bureau and the Children's Bureau on standards for maternity care and outlining a plan for the woman's continued employment in accordance with Government recommendations. The management was impressed with the justice of the case and agreed that the woman should be transferred to a job where she could sit.

TENTH—Give women equal opportunity with men.

When women make good on their jobs, they should be given a chance to be upgraded and an opportunity to transfer.

Training on the job and supplementary training should be followed by actual promotion when a woman has demonstrated her capacity for an advancement in both job and wages. Develop foreladies.

In an aircraft factory, a former saleswoman was given as her first assignment the job of operating a surface grinder. She quickly mastered her machine, and was soon given a more difficult job, building jigs. Again she made good, and as a result was allowed to try her hand at making dies, a job in which her accuracy and skill could be utilized fully.

An aircraft-engine plant gives all women doing monotonous work an opportunity to take the training for more complicated machines or more skilled inspection jobs. Requests for transfer are given careful consideration.

In a plant making small-arms ammunition, various tests are used for the upgrading of machine operators, and women have been trained to replace set-up men as need arises.

In a tubular-steel-products plant, a woman who started as an inspector in the tin-plate division was promoted eventually to forelady, and now, after 20 years, has become assistant to the industrial-relations manager. She has real authority, is consulted by department heads and foremen, and has charge of work for women in the operating departments and offices.

In a plant making brass casings for shells, there are 35 to 40 forewomen directly responsible for supervising the work of employees in their departments, and in the inspection department is a forewoman who has been with the company for a very long time, supervising both men and women. The vice president considers her one of his most able supervisors. She has taken many training courses at night,

both vocational courses and courses for foremen. She knows thoroughly the work that the employees in her department are required to do, having worked on all the processes, and frequently she fills in herself when a girl is absent or off the floor. She plans the work of her department. When asked if men resented being supervised by a woman, she stated that she has learned to handle that situation so as to avoid any resentment; she has a young man as an assistant through whom she gives all her directions to the men.

In a shipyard where the upgrading is left to the various shop foremen, a woman was given the leading man's job (he had been removed by the foreman), being placed in charge of the 22 women and men in one section of the lay-out department. In this same yard a woman was in charge of the light-riveting crew on the ship.

Equal opportunity with men means that wage rates throughout the plant should be based on a straight job analysis.

An aircraft factory reports a set rate for each job, with certain specifications for each. The question of sex is not considered. The job break-down follows the National Metal Trades Association list and there are various grades in each job specification.

A shipyard that has an equal-pay policy for men and women has made every effort to build up the confidence of its women workers through equal pay and by giving them a chance to use their best ability. The manager said, "It is poor psychology to pay women less than men, for it would at once make them feel inferior to men, and then they couldn't be expected to do so well."

The National Foremen's Institute says, "You can't induct a woman into war work and tell her she's going to fill the shoes of a man who has been called to arms, and then pay her only 80 percent of his wages, without stigmatizing her instantly with the idea that she really isn't so good as the man whose job she took over."

A steel mill reports that all jobs are studied and definite job rates set. An employee is paid the rate of the job. "The comptroller's office sends out men to police the plants and see that this policy is being carried out at all times." In another steel mill, men and women begin at the same rates as laborers, and as they are upgraded they are paid the same rates for the same jobs; women are upgraded to as many jobs as they can perform.

Encourage women to make suggestions.

Women's inventiveness and ingenuity may develop short-cuts.

Two women shipfitter trainees invented a device that cuts the time on their job by 60 percent—a stop gage that performs a cutting operation on a shearing machine in the plate shop; it is automatic and is more accurate.

A woman working in the sand-mill department of a steel foundry suggested an ingenious device that cut down the time involved in communicating test results—a clock-like device above the door of each testing room that enables the mill operator to see at a glance what the moisture content is, and so forth. Formerly, a tester would walk over to the mill each time and shout the results.

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Community Services for Women War Workers

Special Bulletin No. 15

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U. S. DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
MARY ANDERSON, Director

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WOMAN'S WORK

THE WOMAN'S WORK

IN THE HOME

1

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FOREWORD

Employment of women reached over 17 million in 1943. These are the women who are helping to build planes and ships and guns; who are working on farms and in factories making essential civilian goods; who are serving food in restaurants, working in offices, caring for the sick.

Unless these women are kept on the job, this war cannot be won; but if they are to be kept on the job, community services must be provided for them. Many of them carry a double load. When they leave the plant, they must serve on the home shift. These are the women whose burdens must be eased. It is essential, for example, that they have a place where children can be cared for, a time when shopping can be done, adequate housing, transportation, and recreation facilities. Problems such as these are the major cause of absenteeism and turn-over in industry.

During the past year the Women's Bureau, which more than 25 years ago was authorized by Congress to investigate and report on all matters concerning the employment of women, surveyed 37 war-industry communities in an effort to find out how well such communities were meeting the needs of women workers. Not only did the Bureau study the special problems just mentioned, but it advised with both labor and management, as well as with local civic and other groups, on how they could be solved.

Reported on the following pages are typical living conditions found in war centers and the way in which some communities are improving them.

MARY ANDERSON, *Director,*
Women's Bureau.

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Community Services for Women War Workers¹

"There ought to be a law," said Mrs. Tom Clark, wife of a marine, mother of four, as she pushed her way onto an already overflowing bus. Mrs. Clark, a welder in the big aircraft company 12 miles from town, had arrived at the grocery store just 3 minutes too late. The store was closed. It was the same old story. For a week Mrs. Clark hadn't been able to get to the store before it closed. The Clarks that night would dine on the one remaining can of peas—a nourishing meal for a woman welder and four growing children! Right then and there Mrs. Clark resolved that hereafter she'd stay away from the plant a day now and then to do her marketing.

In every industrial area in the United States, Women's Bureau agents in surveying and advising on community services have found not one but hundreds of women like Mrs. Clark. Almost a third of the total civilian working force is now women. Doing a double job, war work and home work, all may not have Mrs. Clark's shopping problem, but if not, you may be sure they have many others. Marketing, shopping, child care, transportation, housing, and recreation are some of the major problems with which Mrs. War Worker must cope. If war production is to be maintained the excessive burdens that now limit the effectiveness of these women must be removed. When community problems become too acute, either conditions are remedied or up zoom the absenteeism and turn-over rates.

In October 1943 quit rates for women ranged from 4.24 percent in sighting and fire-control equipment to 9.88 percent in aluminum and magnesium smelting and refining. In the aircraft industry 6.91 percent of the women quit, in shipbuilding and repairs 9.48 percent, and in ammunition (except small-arms) 7.36 percent. The major reason not only for turn-over but for absenteeism and loss of efficiency, the Women's Bureau finds, is the working environment, which includes community as well as plant conditions.

Every community has its share of problems which contribute to high absenteeism and turn-over rates. Every community has the responsibility of helping to provide the services essential to war production. No community is exempt. Production demands action—individual and collective.

COMMUNITY NEEDS

Workers.

To provide the community services so necessary to war production requires workers—waitresses, cooks, laundry workers, bus drivers, and other essential civilian workers. Many communities are urging unemployed housewives to take some of these jobs, on either a full- or a part-time basis.

¹ Prepared by Kathryn Blood.

In a west coast city where there has been great difficulty in getting enough drivers and operators for the buses and streetcars, a bus is parked on one of the downtown streets bearing a sign that reads—

JUST ONE OF MANY BUSES IDLE FOR LACK OF DRIVERS. UNCLE SAM WANTS YOU TO DRIVE A BUS OR STREETCAR TO FIGHT THE BATTLE OF TRANSPORTATION.

In the same city, laundry also is a problem. Since those in the armed forces are given priorities in deliveries and the laundries are short of help, it sometimes takes as long as 3 weeks to get civilians' laundry back. It is also difficult for new customers to get service, as frequently laundries are unable to take additional work.

Emphasizing the vital need for laundry workers, the president of a large west coast aircraft corporation says, "We think every worker we can place in a laundry is worth three new workers in our own plants." This statement was made after a company survey revealed that most absenteeism was caused not by hangovers or other reasons of that type, but by a lack of such community services as laundries and restaurants. Bomber production was being affected because these workers could not get their washing done, nor their meals in restaurants. "The result was," says the president, "that we had to start an advertising campaign to urge people who are unemployed to take jobs in laundries and restaurants so our own people could stay on their jobs."

In a midwestern city, home of many vital war plants, patriotic members of the General Federation of Women's Clubs who nationally had been asked to help recruit workers for essential civilian industries did the unexpected—they recruited themselves. These women look upon their new jobs as an opportunity to serve their country. They are specializing in restaurant and hotel service because of the great need for help in these businesses. They are dishwashers, cooks, waitresses, chambermaids, hostesses, and parcel checkers. They are serving the men and women of this city's vast production army, who in turn are serving the men of the armed forces.

In another city women stopped talking about the shortage of clerks, waitresses, and office workers and did something about it. Calling themselves the War Helpers' Organization, they opened up employment headquarters in one of the hotels, where a retired personnel expert is on duty daily except Sunday, interviewing applicants and trying to fit their qualifications to the 1,130 jobs listed. Realizing that most people who want full-time jobs already have them, they are primarily working to recruit housewives for part-time jobs.

Many older women as well as younger housewives have taken jobs in restaurants, stores, laundries, and other such service industries in an eastern city in one of the tightest labor-shortage areas in the country. Some of these women have never worked; others have not worked for years. Yet many of them, mothers and grandmothers of men in our armed forces, are responding to the appeal for help.

To meet the labor demands, increasing daily, every unemployed woman without small children or other restrictive responsibilities should serve her country by taking an essential civilian job. Not every city needs women welders, riveters, or shipyard workers, but

every city does need such workers as waitresses, cooks, nurses, laundry workers, and bus and streetcar operators.

Shopping.

To correct conditions such as Mrs. War Worker often faces, local industries are cooperating in many places to provide night shopping hours for industrial workers. In one case a grocery store, meat market, and barber and beauty shop have been established at the plant. At another factory the local department store brings out a display of articles for selection and order placement at the plant during the lunch and off hours. Banking services also are available at this plant on pay days for deposit of checks.

In many cities, stores are readjusting shopping hours for the benefit of war workers. Some stores are staying open one or two nights a week. Various other methods have been adopted in an effort to solve the problem.

In Philadelphia some butchers hold back part of their meat supply until 6 p. m. to accommodate housewives who must do their shopping late. St. Louis volunteers collect last-minute information on the "best buys" at stores and markets, and get it to the war-plant workers before they leave their jobs, eliminating unnecessary shopping.

Several plants in New York and New Jersey have plans worked out by management and unions that are helping to solve the food problem. A representative from a grocery store comes to the plant every morning, takes food orders from the women workers, and brings the food at the end of the shift. A plant manufacturing electrical equipment has arranged with a local department store to open a branch in the plant. The items sold are selected to cover essentials, and a special extension service has been set up which will help workers solve their shopping problems without having to miss work.

When women war workers in the Niagara Frontier Area were not getting a fair shopping break, the Labor-Management Council decided to do something about it. Mrs. Stay-At-Home was buying up all the bargains; Mrs. War Worker found the stocks depleted. The council, composed of representatives of management, of the AFL, the CIO, and the International Association of Machinists from 28 war plants in this area, and representing more than 200,000 potential shoppers, sought the cooperation of the merchants in the Buffalo area. Merchants promised to keep back a certain part of their bargains until evening for women war workers.

In an attempt to ease the shopping problem for its thousands of employees who work in the Pentagon, world's largest office building, in Arlington, Va., just across the Potomac from Washington, the War Department has set up various shopping facilities within the building. Among the most popular of these services is a shoe-repair shop, which reports a flourishing business. Many hundreds of pairs of shoes a week are rejuvenated here. Employees may also order articles from the Washington stores through personal shoppers stationed in the building.

In 4 big war plants, the personnel workers accept lists of wanted articles culled from the advertisements in a nearby city's newspapers. Department-store representatives call at the plants with samples, from which the employees may order. Deliveries are made to the workers at the plants.

Even the most ideal shopping conditions, however, will not solve the food problem. Consider the case of Jean Smith, who is all too typical. She works in a west coast aircraft factory and likes her job. But she's not getting enough to eat. In order to make the 8 a.m. shift she must leave her home at 6 o'clock, which means that she very often eats no breakfast. (In another west coast plant it was found that of 293 workers interviewed 84 percent of the women factory workers were eating poor breakfasts and 40 percent of the men had insufficient breakfasts.) The company provides a good hot lunch, but dinner is a problem. Mrs. Smith, tired, hot, and dirty after a day in the plant, must either stand in line at some restaurant or shop for food when she finishes work. Then the chances are that the butcher and the grocer are out of nearly everything. As a result she is suffering from malnutrition.

It is for people like Mrs. Smith that a Detroit food company has begun a prepared-food service for carry-out orders in its 21 stores. The carry-out line thus far worked out includes such items as macaroni and cheese, spaghetti, chile con carne, codfish balls, chicken a la king, chicken pies, potato salad, and creamed spinach.

Mrs. Dorothy Roosevelt, specialist on women's problems in war industries for the War Production Board in the Detroit area, in urging that such a program be set up on a mass basis said, "Through such a set-up we figure we could save a woman 3 hours a day—a minimum for shopping and preparing and cooking food."

Since the early days of the war the Women's Bureau has recommended that community kitchens be established where women war workers might purchase hot, nutritious food at prices within the means of working people, which they could take home.

"British restaurants" are serving daily over 10 million nourishing meals in some 2,000 restaurants and canteens. These meals are priced at about 23 cents.

Child Care.

Where community child-care problems remain unsolved, such things as these result:

Mrs. Nellie Jones, a worker in an eastern ammunition plant, quit last week. Mrs. Jones told them at the plant she'd "just have to go home to keep Junior out of devilment." Her Aunt Sara had been taking care of Junior, she explained, but "Auntie at her age just can't keep up with a 5-year-old scamp."

In a midwestern community an accident emphasized tragically the need for child-care centers. Three children and their grandmother, who cared for them while the two mothers (sisters) were at work in an aircraft factory, were burned to death. Fifteen working mothers with children quit during the week of the accident and others have followed.

The director of the Family Service Association in one war community reports the following case as typical of those found by her organization:

In a small frame house on the edge of town, 12-year-old Sally does her best to care for her three younger brothers, twins of 4 years and a 3-month-old baby. At the time of my visit Sally was sitting by the stove trying to rock the baby to sleep. The twins were out in the kitchen, and when I went to see what they were doing, I found them whittling at a table leg with a sharp butcher knife.

Sally's mother works at a defense plant that has rotating shifts. One week she works from 6 to 4, the following week from 4 to midnight, and the next week from midnight to 8 o'clock. Sally is left in charge and says she does not mind the work but she hates to have to miss school.

The mother has not been able to hire anyone to look after the home in the daytime, much less at night. She states that she has to work because they cannot live on the \$20 a week that she receives from her husband, and she insists she will not accept charity.

Three children, ranging in age from 5 to 10, were seen by a neighbor hanging around the streets of a west coast city whose population has skyrocketed since the war began. Learning that the children's parents were at work in the shipyards, and that their mother kept the house locked until she got home at night, this woman invited the children to come to her home every afternoon after school and stay until their mother came home. This is one of the answers to child-care problems. But we cannot afford to leave child protection to chance.

In an ordnance plant in the midwest, it is reported, women applicants with children under 12 years are referred by the employment division to the child-care-plan worker, who refers them to the local committee handling child-care problems in the various sections of the city. When an applicant goes to the agency for her interview, the plans for the care of her children are reviewed by an experienced worker who is familiar with the resources in her community. This worker gives counsel and advice and frequently assists in making the plans. No applicant with a child under 12 is hired by the company until her plan for the care of the child has been approved by an authorized agency.

Boarding homes for mother and child together have been a rather successful method of solving the child-care problem in one community, but not enough homes are available to fill the need. The Family Service Agency is advertising for more of these homes. The head of this service estimated that about 50 working mothers with one child, and a few with two children, have been placed in this type of boarding home. The minimum charge has been \$50 a month for mother and child; the average fee is around \$75 a month for both.

In Connecticut the State Department of Welfare assigns a full-time worker to an area for service of children in their own homes, and to develop public foster-home service. Family-security interests on a State-wide basis have been undertaken by the Connecticut State Defense Council, Division of Welfare and Community Service.

A Kansas aircraft company, which was losing many mothers with small children after a few days or a week of work, decided that lack of child care was a major cause of such quitting. Consequently, a woman counselor was hired to solve the child-care problem. This woman contacts the child-care agencies and endeavors to find care for children of employed mothers. The company holds community meetings in the city and surrounding towns to promote a better relationship between the company and the community.

Since the parents' response to child care had been rather poor, a Women's Bureau agent suggested that the company use these meetings to promote child-care facilities. The company was agreeable to the suggestion and invited the woman in charge of the Lanham Act nurseries and school-age centers to speak at the next meeting. A movie of one of the nurseries is to be made and will be shown. A

Women's Bureau agent also was invited to speak at a meeting on the relation of adequate child care to the efficiency of women workers.

Five thousand or more communities now have organized welfare committees to care for the children of mother war workers, but much yet remains to be done. A little more than half of the 3,385 child-care centers approved under the Lanham Act have actually been opened, and not all of those now open are filled. This does not mean that they are not needed. Some, for example, are in out-of-the-way places that are difficult for the mothers to reach.

Where adequate and well located child-care centers exist, the community can assist in publicizing them. Through educational programs, mothers can be informed of their purpose, their availability, and the way in which they operate. In those areas where child-care centers are either nonexistent or inadequate, direct community action should be taken to relieve the problem.

Housing.

In recruiting women, one large firm told them among other things that there was a nice housing project near the plant. The recruiters failed to add that the nice housing project was already filled. Needless to say, such tactics worked havoc with the morale of the company's new employees. Fortunately for war production such false promises are rare.

Women looking for rooms face problems just as difficult, for all too often only men are wanted by the renters. Landladies report that women are "more bother," "more trouble around the house," "always under foot," "always using the one bathroom in the house to do personal laundry," "women want to wash and iron and cook, and they think the telephone is their private property."

In a small North Carolina town a survey showed that only 6 percent of the housing listed was available to women.

The room-registry office of the war housing center in another city reported that persons having rooms for rent show preference for tenants in this order: Traveling men, men working in the city, couples if both husband and wife are working, couples with no children, single women. Many will not take single women at all.

In a town near a large ordnance plant both the city manager and the head of the rooms-registration office said there were rooms available at the present time but at least 80 percent of the private homes do not want women. The housing situation has been somewhat relieved since the completion of one Defense Housing project and the opening of another Government trailer camp. In some localities defense dormitories have been built for unattached girls, but in others the housing situation is still acute.

In a few places, probably where men had departed in large numbers for the services or for war industries in other areas, householders were reported to be eager to house women.

In one city a Mrs. A. turned her small grocery store and most of her house, which is attached, into a dormitory and several large sleeping rooms. At first she had men roomers, but she changed to women roomers after a girl who was unable to find lodgings came to her one night and pleaded for a place to stay. She is now furnishing accommodations for industrial women who work at an airfield and the two shipyards. These girls have the use of the kitchen, which was turned

over to them. Unfortunately there is no living room in which the girls may entertain.

United community planning and action are essential if women are to find desirable living quarters in war centers. Some communities have demonstrated amazing reserves in their ability to care for new workers. For example, a town whose former population was 6,000 has managed to take care of another 6,000 through the united action of church groups, officials in industry, and the local USO. In another town the YWCA placed some 2,500 girls in living quarters in 8 or 9 months.

An association of professional women, individually and as groups, has been active in helping to solve women's housing problems. Members have served at room-registry and hospitality desks, have helped to conduct door-to-door canvasses of housing facilities and conditions, and many have opened their own homes to women war workers. In one city the social-studies chairman organized a local committee to plan for a room-inspection and supervision service for new women workers. A committee of this branch also works with a local war-housing committee.

In another city a housing committee, established by a labor organization, took a number of very graphic pictures of extremely poor housing conditions in trailer camps, shacks, and tents, which they used to publicize the need for housing. The Council of Social Agencies in the city now has a housing committee that is concerning itself particularly with the problems of women's housing. In addition to working with this committee, the YWCA has worked independently to compile information on the housing problem. Under the leadership of the USO director in the area the YWCA also made an extensive survey of Negro housing. Very poor housing was found in a great many instances, particularly as to sanitation. As a result of the survey some improvements have been made. The Civilian Defense Council and a women's organization, independently and in conjunction with other organizations, have taken an active interest in the housing situation. By now, extensive housing projects of all types have been planned for this vicinity.

Houses and apartments generally are even more difficult to find than rooms, and their lack is often a big factor in preventing more recruitment from surplus labor areas. One city had no houses for rent under \$100 a month. In a midwestern city where housing is a serious problem, plant records show that a number of employees have quit because of their inability to find houses. In another place where the housing situation is critical, the grounds behind the plant are being cleared and box cars are being placed there to house families. In other places tents and trailers are used as houses.

In a west coast city where the housing situation is very acute many people in advertising for a place to live offer a "reward" of from \$15 to \$25 or more for help in finding a home. This actually means that they will pay such an amount each month over and above the listed rental rate, rather than a lump-sum payment. One advertisement reads: \$50 reward—2-bedroom unfurnished house for responsible party: within 10-mile radius destroyer base. Another advertisement asks: Do you need a painter? We need a house. Couple to be evicted because of coming baby. Will redecorate your house for privilege of renting a 1- or 2-bedroom, furnished or unfurnished.

Transportation.

A Detroit woman war worker in appearing at hearings on transportation problems held by the Women's Advisory Council, War Production Board, complained that shifts were changed so frequently that workers were unable to keep a place in a car pool. "For a while we're working days and we're shifted to afternoons and then to midnight—naturally we lose our driver," she explained. She stated further that they were not able to get management's cooperation in solving the transportation problem or in reducing the frequency with which shifts were changed. Bus service also was described by her as being poor. "The bus goes as far as Eccles Road, and then many people have to walk a good six or seven blocks from Eccles Road up to the factory. When they get there the women seem to be tired."

One eastern war town has no bus service from the town to the plant, which is about 2 miles away. Since women work on all three shifts, and live in the town, they must walk this distance unless they are lucky enough to get a ride. One of the girls who roomed in the town said, "Believe me I'm plenty scared to walk home when I work the shift that gets out at midnight." Taxi fare from town to plant is 35 cents, but it is not always available at midnight, as one private car provides the only taxi service.

Transportation to a shipbuilding yard in the South became so tangled that it led to a strike. The main part of the yard is on an island across the river from the city. The yard can be reached in only two ways—by ferry boat or by cars or buses running through the tunnel, with only one lane for traffic each way. The regular fee for the tunnel is 25 cents but shipyard workers are eligible for a special rate of 10 cents. The ferry service, however, has caused more dissatisfaction than the tunnel. At first, when the shipyard employed relatively few workers, it operated a small ferry. Employees were given this service free. Later, as the number of employees increased, arrangements were made for the city to operate a ferry service, for which it charged 5 cents. The process of getting across the river was likely to take workers an hour or more, as one ferry with a maximum capacity of 500 was attempting to furnish transportation to thousands of workers. Because of the general dissatisfaction with the transportation conditions, the new charge led to a strike, and a number of the workers left the plant. Later, another company took over the ferry service and it is reported that five ferries are to be operated, and that some new landings are to be built.

Lack of transportation has kept the dormitories at another war center from being fully occupied. Women tried to live in these dormitories, but this was unsuccessful because of transportation difficulties. The nearest bus service was 5 blocks away and women leaving work at night had to walk along a dark road through a poor part of town to get to the dormitory.

In a southern town aircraft workers ride in buses that are left-overs of the State Exposition of 1936-37, a trailer-type of sight-seeing coach without glass, carrying 110 and sometimes more passengers. In bad weather the sides are curtained with canvas. They have been dubbed the "CCC's"—"Company Cattle Cars."

Many communities, realizing that poor transportation cuts production, are working to improve it. At one Government arsenal in the

midwest, if there is not adequate transportation for the girls on the 3-to-11 evening shift they are taken home in Government cars. Another company gets city police to escort each night shift in groups to and from the nearest streetcar and bus stops.

The transportation committee, a subcommittee of the labor-management committee of a plant in a midwestern town, designed a travel questionnaire and distributed and collected the cards to discover what their transportation needs were. After listing the present transportation methods of all employees they made an official map, spotting workers' homes in relation to the plant and their routes of travel. This showed a need for more trolley and bus service, particularly for night-shift workers, with the result that a labor-management delegation was sent to the Public Service Commission. It also showed a need for more parking space, which resulted in delegations visiting the mayor and the city alderman to request parking privileges in an unused lot near the plant. The survey revealed a need for car-pooling. As a result the committee began a "share-your-car" program, set up a "V" fleet of drivers, and with materials and pamphlets supplied by a large tire-repair company conducted a tire-conservation program. Another subcommittee had the job of posting notices and placards on bulletin boards throughout the plant.

A labor-management transportation subcommittee in another plant made a large map of the city and put on it, in the form of tags on hooks grouped according to locality, the names of persons willing to share their cars and of persons desiring transportation. The map enables the employee interested to know what is available in his and surrounding zones, because each tag represents an employee in the zone who (1) wishes to swap trips with another driver, (2) has space for riders, or (3) needs a ride. The color of the tag, white, green, or yellow, indicates the shift on which employed.

Recreation.

"Just working and sleeping, or trying to sleep while the kids keep romping around, is driving me batty," Jerry Stokes was telling the foreman at the bomber plant. "Take the men on my swing shift, for example," Stokes went on, "many of them get punch-card drunk. I mean that day after day they punch the time clock, going in and coming out; they've nothing to look forward to. The result is that after 2 or 3 weeks they take a day or so off and have a fling.

"Then, too, our wives get trailer-wacky, living in cramped quarters. The people in town here aren't too friendly. We don't belong. The movie theater is packed every night. You have to fight your way into an eating place or a bowling alley. My wife's getting pretty fed up and needling me to move to a bigger town where there's something to do. I guess it would be just as patriotic.

"We don't need something to do every night. Don't ask for it. We'd be satisfied with one party to look forward to each week," Stokes said hopefully.

Luckily, in the Stokes's case the community woke up and started things rolling. The mayor formed a war-recreation committee with representatives from churches, civic and women's clubs, and commercial entertainment houses, as well as labor and management. A survey was made to find out where the people lived and what kinds of recreation they wanted. A visiting committee welcomed newcomers,

invited them to churches and to homes. The first big event was a dance. High-school students volunteered to take care of the children so that the wives of the workers could attend.

At another trailer camp a woman worker became increasingly despondent over what she called being "imprisoned." The only other nearby building to which she could go was the camp laundry. Though a demountable recreation building had been proposed, it had not been established. One of the men came home from work one night and found his wife gone. He left the next day, thus causing another gap in the plant.

Throughout the United States there are thousands of war workers, uprooted from their homes, who must live in trailers, crowded rooming houses, or other temporary quarters. These people need relief from the monotony of work and sleep. Unless recreation is provided nearby they are likely to take a day off now and then to go in search of a little fun.

Some communities are now becoming aware of the need to provide recreational facilities, but there still are many dreary places where war workers must exist "without even one spot of fun."

In an attempt to solve this problem, a southern town set up a recreational council, and through donations from local townspeople furnished a recreation club for women trainees at the local ordnance plant. Facilities are provided for games, reading, writing, lounging, music, as well as for such domestic chores as cooking, ironing, and sewing.

Another city, also in the South, held a downtown street dance. A number of streets were roped off for the occasion. Folk musicians and entertainers appeared on the show, and a hillbilly band furnished music for the dancing and variety acts. No charge was made for the entertainment.

In an eastern city the YMCA set up a young people's social club for nightshift workers employed on the 4-to-12 "swing" shift. It started with 35 young residents and now includes over 100 women, known as associate members.

One community holds regular swing-shift dances for aircraft workers every Sunday morning from 2 to 6.

In a midwestern town the Council of Social Agencies once each week sponsors a dark-to-dawn dance. Dancing begins at 9 p. m. and lasts until 4 in the morning. Night workers are invited to come in their everyday clothes, and there is no admission fee.

At a west coast public-housing project the occupants have formed a volunteer recreation corps that does everything from teaching bridge to getting together an orchestra. A welder from a nearby shipyard trains choruses; another organizes basketball teams; a shipwright gets together horseshoe teams, building the pits himself. Some of the women shipyard workers, assisted by a school teacher, are developing a Little Theater group.

Recreational facilities are provided in the dormitory of a midwestern town. A large recreation room with games, piano, jukebox, and ample space for parties is provided. Out of doors, workers have the use of baseball diamonds, tennis courts, and horseshoe pits. A full-time director is in charge.

The Recreation and Welfare Department of another midwestern town has a monthly dance with an average attendance of about 1,000. All money for recreational purposes comes from revenue made on the sale of such things as soft drinks, peanuts, and candy.

In another city the movie house agreed to operate on a 24-hour schedule once a week. A second theater is changing its opening hour in the morning from 11 to 10.

In some cases where there are recreational facilities they are too far away from the workers' homes or there is inadequate transportation. For example, in one midwestern town the YWCA has a large modern building with swimming pool, gymnasium, and various club rooms with kitchen facilities for club suppers. Yet few of the girls from the war plants make use of these facilities and they give as their reasons (1) Group riding in private cars. Girls can't stop at YWCA very easily when riding with other persons who are not interested or need to go home immediately after work; (2) Public transportation. Workers are reluctant to take bus downtown to YW after they ride the crowded buses home; (3) Rotation of shifts every week. Girls lose place and interest in activities in which they have been taking part.

The USO in an Iowa town rented an old family mansion for a club building. Situated in the best residential section of the city, it not only is several blocks from a bus line but is in the opposite direction from the defense housing and trailer camps and the ordnance plant, making it very difficult for workers to reach.

An industrial secretary of the YWCA in another city, when asked why they failed to interest the girls in their program, said that many of the girls were too worn out after their shift at the plant to go home, change their clothes, get on another bus, and come to the recreation center. She said that it was not at all uncommon for girls to fall asleep on davenport between dances.

An analysis of recreational facilities now available and of the complaints made by women workers indicates a need for more neighborhood parties and activities that women could attend without taking another tiring bus trip. Further, there are many women who are reluctant to go to big parties and meetings.





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THE WOMAN COUNSELOR IN WAR INDUSTRIES

An Effective System

By

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INDUSTRY has had personnel departments for many years. The development of very large war production plants, the need for speedy production, and the employment of large numbers of women and men inexperienced in industry have brought about new needs, however, that called for a new type of personnel system. From the past 2 years' experience of many air-frame, shipyard, and ammunition plants there has evolved an employee counseling system that meets workers' current needs. Such a system is described in this pamphlet.

As shipyards present more difficult women-personnel problems than any other war industry, the effectiveness of personnel systems in shipyards in the spring of 1943 is described separately on the concluding pages.

THE WOMAN COUNSELOR IN WAR INDUSTRIES

An Effective System

Good personnel practice demands careful selection, placement, and supervision of each worker so that his or her optimum efficiency may be attained. Awareness of individual differences is necessary and, by extension of the principle, recognition of such group differences as exist between men and women workers. In this recognition there is no assumption of inferiority or superiority or of any valuation whatever, but knowledge of the more uniformly good results from treating like things alike and different things differently.

Though the new women recruits should be considered on the job primarily as workers rather than as women, recognition should be given to their strangeness in the industrial environment, their inexperience, and the difference from men in their background and physical structure.

In acknowledgment of these facts, industries employing numbers of women for the first time are tending increasingly to set up a women's division in their personnel or industrial relations department headed by a properly qualified woman. Such an arrangement makes possible more effective selection and placement of women. It maintains also regular machinery of an effective kind for helping to settle women's grievances, solving their special problems, supervising their particular needs, and aiding them in all matters that affect their job adjustment except actual performance of the work, thereby relieving their production supervisor from duties for which he has little time and is not especially qualified. A women's division is especially recommended in industries in which the physical and administrative adjustment of the plant has until very recently been geared entirely to a male labor force.

An arrangement that has been found effective in plants employing as many as 500 or more women is one in which a head of women's personnel works within the main personnel or industrial relations office and has under her women personnel counselors who are responsible also to the chief production supervisors or masters in the shops. The counselors work directly with the women employees and occupy desks in the shops to which they are appointed. In most plants or yards it is best that at least one woman personnel assistant be assigned to every shop where considerable numbers of women are employed. In some plants there may be shops requiring several women assistants. When numbers of women are working on the ways, on board ship, or out of doors on slabs, farms, or platens in shipyards, personnel assistants should be assigned to cover these areas. The women's personnel organization should include also women employment and exit interviewers when the head of women's personnel or the women counselors do not assume these duties.

In plants with relatively few women, the head of women's personnel may be able to handle all matters herself with perhaps the aid of a woman interviewer and one or more roving representatives or assistants who keep in close contact with the women workers and with the women's production supervisors.

The size and lay-out of the factory or yard and the extent of women's employment will determine the detailed set-up of the counseling system. However, experience and present need have determined what the functions should be.

Whatever the set-up and functions, the counselors' status should be well defined. Job supervisors and union representatives should be consulted when delimiting and outlining their functions, and all the workers, men and women, should understand them thoroughly.

Because of their full-time attention to the special needs of women workers, the women personnel counselors can be of particular assistance not only to job supervisors but to shop stewards. It is important that both work closely with the counselors and use the service they can render, the better to increase their own effectiveness and to give the women workers greater opportunity for good adjustment.

The functions of the head of women's personnel and of her assistants that experience has proved effective are described in the pages that follow.

The Head of Women's Personnel.

Her Functions.

No position may be defined rigidly to cover every situation. Actually, the functions of the women's personnel officer and of any assistants she has will vary from plant to plant, depending on the background and qualifications of the incumbents, conditions in the plant, and of course the degree of latitude given the women's division by management. By and large, however, certain duties are fundamental to the position of head of women's personnel if the individual occupying the post is to have sufficient responsibility for effective action. She should be called upon to assist and advise the chief officer in charge of personnel in the over-all planning and coordination of employee-relations work affecting women production workers. In this way she will help to formulate the general policies that will prevail in the selection, placement, induction, and supervision of women as well as in their counseling and personal adjustment to the job. A uniform policy with respect to the general steps to be taken when problems arise from the employment of women should be established in the central personnel office and maintained through the office of the head of women's personnel. It is recognized that in occasional instances proper and effective placement of women on certain shifts or types of job will invade established seniority rights and privileges. Procedure in such cases should be made clear and should be decided in consultation with labor and management.¹

¹ Whenever possible the preferred method for the duration of the war is to allow placement of women wherever they can do the best job regardless of the established seniority rules. For example, if the heavy jobs usually go to the youngest workers in point of seniority, it should be recognized by labor and management that for as long as women are needed in the plant this rule should be waived so that, though new workers, women can be assigned to jobs according to ability to perform them. Likewise, where newcomers automatically draw the "graveyard" shift, it is recommended that this rule be overlooked in special cases so that assignment to shifts may be made on an individual basis when home responsibilities, health, or other factors warrant.

It should be the duty of the head of women personnel to foster and maintain the correlation and cooperation of the various plant departments with the women's personnel program. This should involve discussion, interchange of ideas, and development of policies regarding such matters as women's medical examination and care, their safety, training, and occupational dispersion and work progress. In this way each department of the plant is apprised of the aid it can give in furnishing valuable information to the women's division and at the same time can learn of ways to extend and improve its own program with respect to the women workers. The head of women's personnel also should have considerable direct responsibility for planning and supervising the setting up of toilet, washroom, restroom, and any other facilities, such as the cafeteria or other lunching arrangements, that women must use.

If the head of women's personnel does not do the interviewing herself, she should help to select, guide, and train, and should work closely with, the intake and exit interviewer of women, both to seek ways of improving women's selection and placement and to determine and if possible eliminate causes of their separation. Where women personnel counselors are employed, the head of the women's program should choose the candidates in consultation with the shop supervisors or masters with whom they will work and subject to the approval of the chief personnel officer. She should, however, have sole responsibility for the counselors' training and direction and be available at all times to answer their questions and help them with their problems. When there are a number of counselors it is advisable to hold regular meetings with the group for interchange of ideas, threshing out of problems, and review of policy. From these meetings the head of women's personnel may select pressing matters that require quick administrative action, or situations of larger scope requiring study and careful approach with the cooperation of the entire administrative staff, perhaps even outside agencies.

The women's head should supervise the setting up and maintenance of an efficient, complete, and up-to-date record system covering every woman employee. Background facts such as experience, education, age, marital status, number and ages of children, and the like should be secured at time of the intake interviews. Each woman counselor, under the head of women's personnel, should help to keep the records current and be provided with a duplicate of the complete record of each of the women in her charge. Data the counselors can supply relate to the job and its performance, wage status, absences, transfers, grievances and their settlement, and so forth. There should be periodic transfer to the master file of medical, accident, and training data. The material on each record card and correlation of the data can be tremendously illuminating in all phases of the work with women, including, for example, job placement, transfers, promotion, and investigation into absence and turn-over.

The factory or shipyard is not located in a vacuum, nor do the affairs of its workers begin and end with the 8-hour shift. There are many ways in which outside influences aid the worker on the job or lead to discontent, absenteeism, turn-over, and other production saboteurs. The lack of adequate housing, recreation, transportation, and child-care facilities is among outside influences that affect women

workers the most. It should be the responsibility of the women's personnel officer to work with the community agencies that have jurisdiction over such matters in the effort to promote introduction of community facilities that may be lacking or the reorganization, perhaps the extension, of those not serving adequately if at all the important needs of significant numbers of women workers. Careful survey of the women factory employees may reveal, for example, the need for more nursery schools in some areas while there are too many in others, for their earlier opening and later closing, or for an after-school-care program. The chief of women's personnel can be influential in making the facts known and securing action. In conference with the USO-Y. W. C. A., directors of Federal Government housing projects, and others, she can lend her assistance in the expanding of recreational facilities to include activities suitable for women and adjusted to their hour schedules. By the enlistment of civic support, the merchants of the town may be persuaded to sacrifice a morning and keep their doors open one evening a week to accommodate the busy day shift. These are examples of some of the community affairs with which a women's personnel officer can profitably concern herself to secure better adjustment of her women workers to their jobs and consequently more nearly maximum production. She may also learn from the outside agencies with which she maintains contact ways in which the plant itself can make accommodations and introduce facilities that will temporarily relieve community limitations or serve to supplement them. Rationing bureaus and room registries are examples of such services.

Her Qualifications.

To perform these duties ideally the women's personnel executive should have had experience in industrial work and labor relations affording her some practical knowledge of personnel management and labor and factory economics. In factories with union agreements it would be well if she were acquainted also with the organization, functions, and activities of unions in general and particularly with those prevailing where she is to accept an official post.

Actually, few women have had such experience, so good fundamental education and personality and leadership qualities may have to be the basis of choice. Special education and a thorough knowledge of work operations in the plant and the conditions under which they are performed are important but may have to be gained after employment.

The most important personal qualifications to be sought are such rare and precious traits as good common sense and judgment, leadership and organizing ability, initiative, imagination coupled with practicality, equable temperament, humor, ability to work well with others, and the faculty of persuading management to make changes that employee conferences indicate are needed.

The Personnel Counselors.

Decentralization of the personnel function involving the appointment of counselors to assist the chief of women's personnel makes possible more thorough attention to the needs of women employees and their work supervisors and a greater spread of the services that can be rendered. Experience has proved that few new workers will go to a central personnel office distant from their shops. The personnel representative must be stationed where women are at work.

The important consideration in assigning the personnel counselors, besides matters of background and personality, is the necessity that representation from the women's personnel office be provided within each shop, for each of the shifts, and over all parts of the plant or yard and docks where women work. There should be no important hiatus in this representation, for serious problems may stem from inadequate supervision, especially in the first months of women's employment and when women are working in small numbers in isolated places. It has been found in practice that a relatively large number of women, certainly as many as a hundred, can be handled by one counselor when all the women workers are together within a shop, as in the machine shop; but in the case of the public-works department in shipyards, where women maintenance employees work all over the yard, a greater number of personnel counselors are required for the same number of women workers. When a group of women from different shops or departments are working on board ship, a woman counselor without specific shop assignment should be provided. It is recommended that when many Negro women are employed, a Negro assistant be added to the personnel staff.

Women personnel counselors have been rendered ineffective in some concerns because their duties and authority had not been clearly defined by the main personnel office. If the personnel program with women is to meet with success, the functions and status of the women counselors, as well as the limits of their authority, should be well understood by them and by all the production supervisors and employees, men as well as women. Their position, furthermore, should command respect and be attended with adequate authority for effective action derived from the central personnel office. In general, the arrangement that has been found most satisfactory is one in which the personnel counselors are concerned only with problems that do not pertain to the performance of the work itself and in which their function is advisory to the job supervisors. They serve to bring supervisor and workers closer together.

It is a mistake to give certain women production workers counseling functions setting them apart from and above their fellow women operatives but giving them no additional claim to status. The counselor must stand outside the production system in order to view it objectively. Furthermore, personnel work in a plant employing hundreds of women is a full-time job and cannot be performed with any justice by women who are also responsible for production.

Their Functions.

Whether they conduct the intake interview themselves or receive applicants selected by the central personnel office, it should be the function of the personnel counselors and within their ability to aid the work supervisors in determining the suitability of women applicants for specific jobs. They should help also in completing the hiring and placement process, arranging for the workers' starting date, and similar details.

The induction and orientation of new women employees is an especially important aspect of the personnel counselors' job. When the training division is not organized to undertake the induction program, part of the work of the woman counselor should require, briefly, acquainting the women with shop or yard geography and with plant

processes and terminology; introducing them to their fellow workers and their work supervisors; making them cognizant of shop rules, safety regulations, and proper work clothing; informing them about wages, hours, and policies that cover training, promotions, transfers, and dismissals; telling them about means of securing transportation to the plant; and many other matters. Even if there is a manual covering these points, each item bears reviewing, and sufficient time should be given to the answering of employees' questions. Through this induction process the woman counselor has the opportunity of establishing herself as a friend of the individual woman worker, to whom the worker may come whenever she needs assistance.

Even when formal induction has taken place, the work of the women counselors should by no means be considered over with respect to orientating the women to their new job experience. This should be a continuing process. It involves careful follow-up of the new workers to help them make a satisfactory adjustment, develop good work habits, a constructive work spirit, and an attitude and sense of belonging in a cooperative enterprise. The counselors can be most effective also in helping supervisors to educate the women early in safe habits of work, including especially the conscientious wearing of proper work clothing. To carry out these duties effectively, the personnel counselors must visit workrooms and work stations frequently. In this way they are in a position to encourage women on the job, follow up transferred employees on a new job, and watch closely employees whose work or conduct is or has been unsatisfactory.

Assistance in arranging department and interdepartment transfers of women workers should be given by the women counselors. They should also cooperate with the job supervisors in the reassignment of employees in cases in which such factors as physical disability, vocational maladjustment, lack of suitable work, and the like may be involved. They are to lend aid to foremen and others in selecting women for promotion, upgrading, and retraining for new work. When employees are available for transfer who cannot be placed within the shop under their jurisdiction, the counselors should refer them to the central personnel office and advise the office as to the type of work for which they have shown aptitude. When discharge is indicated, the counselors should seek to avoid it if possible by bringing about readjustment or rehabilitation of the workers, but if this proves impossible, they should make the recommendation for discharge. Actual dismissal should be effected only through the central personnel office, in close consultation with the head of women's personnel.

The women workers should be encouraged to take to the women counselors any problems they may have that affect their relation to the job, whether the matters involve shop, personal, or family situations. To perform their function in this regard, the counselors should be available for consultation at all times during normal working hours. When the professional attention of physician or social worker is required, the counselors should refer the women to qualified persons or agencies in the community for help. They should not themselves attempt to deal with deep-seated problems requiring professional attention. Their function is that of detecting such problems and knowing where and how the individuals concerned can secure help.

When valid complaints or grievances about the work, shop, or yard are voiced, the counselors should interpret the needs and viewpoint of the women workers and act generally as liaison between the women and their foremen, or other supervisors, or help the union stewards in this. The counselor should, in fact, be equipped to make recommendations and in other ways assist in arriving at a satisfactory adjustment of women's requests or grievances.

The counselors should concern themselves with giving constructive aid to the women workers in situations that, though not directly related to the plant, nevertheless are highly important to morale and work performance. This aspect of the counselor's duties may involve, among other things, helping to secure day care for children when regular arrangements have failed, aiding in the search for living accommodations, setting up car pools, or finding a nursing home for an ill relative. Assistance of this kind makes it immeasurably easier for the women workers to assume and carry out the dual role of worker and housewife and to adjust to the strange environment and work of the factory or yard. Where the personnel counselor is equipped to do an intelligent job of this kind, knowing when and of what agencies to ask assistance, she can bring to the women under her a sense of security, relieving them of strains and anxieties that very seriously affect their production, interfere with their attendance, and cause them to leave their jobs.

Their knowledge of work processes and women's capabilities makes the women counselors especially helpful in finding ways of extending women's employment through the shop and advising the supervisors and personnel office accordingly. It is desirable that they be equipped also to check on new jobs proposed for women by others and to assist in determining their suitability. In this general connection, the counselors should be on the alert for ways in which the jobs women already hold could be replanned, rearranged, or reengineered to reduce fatigue and contribute to more efficient performance.

Complete records should be kept by each counselor for every woman under her direction, and the central personnel office should be notified of changes and additions that should be recorded in the master file. Records that are current and complete, including information on education, experience, home responsibilities, health, and the like, are necessary background for intelligent counseling and constructive service alike to management, to job supervisors, and to women workers.

It will be necessary in some plants for the counselors to supervise the maintenance and use of the women's rest room, washroom, and cloakrooms. This should be done only to make certain that the women's facilities are adequate and are kept clean and in good repair and to follow up certain of the workers who may be abusing their privileges or who may require help or attention. It should not be carried out as a general policing function nor should the counselor be charged with cleaning or in any way tending the washroom or rest rooms. Such capacities would detract from her status in the eyes of the women in her charge. Policing the washroom and rest rooms is wholly unnecessary under a wise personnel program that begins with good selection and involves careful induction and orientation of women, attention to their special needs, and effective counseling. Care of the women's facilities should be the function of the department of maintenance or

the service department; occasional suggestions to and from the women's personnel office are of course in order.

Finally, the counselors should be free to offer suggestions to the chief of women's personnel and refer to her any cases on which advice is needed or on which action should be taken from the main office.

Their Qualifications.

It is obvious that, to do their job well, women personnel counselors should be thoroughly acquainted with the work in the factory or shipyard and especially with the jobs in the shop or division to which they are assigned. This knowledge may be acquired as a worker in the ranks, if only for a few weeks. In any case, acceptance of the personnel job should involve sufficient preliminary training in production work to provide first-hand understanding of processes, personnel problems, and production details.

Very early, if the counselor has not already acquired the knowledge from employment in the factory in another capacity, she should become thoroughly acquainted with plant organization and policies. Here again it is important that she bring to the job practical experience in either industry or business, preferably in work involving supervision. In this way she will have acquired some facility with the problems of personnel and the techniques of supervision. General academic theoretical understanding of the work also is desirable, and this of course assumes education beyond high school.

The personality traits that have proved advisable in a personnel counselor have a wide range. They include emotional stability; the quality of leadership without officiousness; tact; resourcefulness; versatility; adaptability; good judgment; patience; a genuine interest in, and understanding of, people; good insight; a sense of humor; and a knowledge of when and how to compromise.

PERSONNEL PROGRAMS IN PRACTICE IN SHIPYARDS

Field representatives of the Women's Bureau visited 41 shipyards in 1943, 35 of which had women on production. Nearly three-fourths of the latter, 26 yards, were already, at date of survey, employing 1 or more women to deal in some way with women's personnel relations. In most of these shipyards, a woman, with or without assistants, had the title if not always the authority of the head of women's personnel. There were only 2 instances in which the women personnel workers were women's intake interviewers with no other functions, and only 2 in which they were matrons charged solely with policing the women's rest rooms.

Nine of the shipyards visited had no women personnel workers. Five of these employed each from 700 to 2,200 women wage earners and were sorely in need of more adequate attention to women's problems for the sake of boosting morale and production. One was notorious for its deplorable working conditions and the poor spirit of its workers, features that inevitably are found together. The yard's reputation caused reluctance on the part of women in the town to answer the call for workers. Consequently, many of the women taken on are from out of town, complicating community and management problems immeasurably and leading to the employment of women who ordinarily would be unacceptable. A good many of the shipyard's

difficulties might not have arisen had adequate selection of women been made at the outset and their adjustment and supervision been placed under the direction of a capable head of women's personnel. A belated effort was being made at time of visit (February 1943) to find a woman to accept the post. A person of adequate background, given sufficient authority, should be able to do a great deal to remedy matters, but the job is infinitely more difficult because of the poor beginning.

The women's personnel divisions in active operation varied considerably from yard to yard, differing chiefly in the freedom from rein and the well-defined authority given the women counselors and the approach to the personnel function, whether administrative and positive or disciplinary and negative. Only a few effective plans were in force at the time of visit by Women's Bureau representatives. Two were in United States navy yards. One of these was organized late in 1942, but another was set up in response to a circular letter issued in May by the Assistant Secretary of the Navy, establishing the positions of "personnel assistants" for women shop employees in naval shore establishments. The positions were set up in four grades, beginning with junior personnel assistant at a \$2,000 annual salary and allowing at the top for a principal personnel assistant at \$3,200. Description of the position for the first grade, that of junior personnel assistant, follows:

Under general supervision of the shop master or his designated representative, serves as personnel assistant for shop supervisors in a shop employing a small number of workers, or as an assistant to the leading personnel assistant in a shop employing a large number of workers.

Performs under general supervision a limited number of the following duties to assist shop supervisors in handling personnel problems, particularly these concerning women shop employees: Assists in the introduction of new workers to shop employment—location of time clocks, proper muster, identification badges, location of lockers, cafeterias, rest rooms, etc.; instruction in shop safety rules, safe working practices, and proper work clothing; explanation of shop and yard regulations concerning attendance, sick leave, conduct on the job, etc.; assists supervisors in proper placement and transfer of workers in employment for which they are best fitted; assists in follow-up to prevent or correct tardiness, irregular attendance, improper conduct on the job, loafing, wastefulness, etc.; assists supervisors in personal problems of women workers concerning health, transportation, housing, rationing, etc., and advises employees as to the various services in the yard available to them in these and similar matters; assists supervisors in handling grievances and complaints of women workers; other similar duties as assigned.

The principal personnel assistant carries the following responsibilities:

Under general supervision of the personnel relations officer, serves as the coordinator of the work of all women personnel assistants at a large navy yard.

Responsible to the yard personnel relations officer for developing and putting into operation the program for women personnel assistants in shops where women are employed in industrial work.

Assists shop masters in the selection and training of women personnel assistants in the shops; instructs, guides, and advises women personnel assistants in their major problems and in the general conduct of their work.

Conducts meetings as necessary of all women personnel assistants for discussion of women employees' problems and the proper steps to be taken in their solution.

Assists and advises the personnel relations officer in the over-all planning and coordination of employee relations work affecting women shop employees.

These position descriptions briefly summarize an organization for women's personnel work that should meet success not only in the navy yards but in any large shipyard expecting to employ numbers of women in industrial work. Two things the new policies indicated are expected to overcome in those navy yards without adequate women's divisions are the frequently encountered objections of shop masters to introducing women counselors and reluctance on the part of shop supervisors to allow women counselors already employed any authority or backing.

One navy yard had organized an adequate women's program several months before the Assistant Secretary's circular letter was issued. This was done, however, after 3,000 women already were employed and a difficult situation had arisen revealing strain and conflict between the new women employees and their supervisors and fellow workers. The men had not been made fully aware that the women had to be depended on for production, and little attention therefore was being paid as to whether the 3,000 women did or did not build ships. It became apparent that a liaison had to be introduced between the men supervisors and the new women workers. A yard coordinator for women was appointed to work out over-all policy and a program to meet the problems that had arisen. Though final approval of her program and policies was subject to strict military and civilian inspection, she was nevertheless given broad powers and discretion in developing plans. The resulting organization elicited this comment from the Women's Bureau field representative who visited the yard: "The system of women coordinators which has been devised is one of the most effective observed in any of the war industries visited." It had flaws of which the yard coordinator was aware, but efforts were being made to correct and change methods as conditions warranted. Furthermore, the whole attitude of the yard was one of eagerness to take full advantage of professional criticism and recommendations and to make practical changes.

It is to be hoped that each of the navy yards, with the Assistant Secretary's sound recommendations for strengthening personnel work with women in naval shore establishments as a guide, will set up an effective women's personnel organization to meet its particular needs. This is especially important since the eight navy yards building and repairing ships, only a fraction of the country's shipyards, nevertheless employ a large share of the total women wage earners in the industry, a share, in fact, out of all proportion to their small number; it amounted to nearly a fourth in March 1943.

There are many more private commercial yards, their problems differing considerably one from another, depending on their size, their location, the age and adequacy of their plant, the labor supply in the area, the kinds of ships they build, or whether or not they repair ships. The navy yards, in contrast, are fairly uniform. They are all large and old yards that are repairing ships as much as, or more than, building new ones. They ordinarily do a great deal more work under cover than the private yards because of excellent plant accommodations. The private yards run the gamut in all these matters, and therefore it is much more difficult to generalize about them. Most of those visited appeared to be doing a mediocre or poor per-

sonnel job with women; but some were found to be doing a most noteworthy job. For example, one with fewer than 200 women operatives had a capable woman personnel officer in charge who was assisted by a secretary-interviewer and a field representative. The women's division handled women's intake and exit interviewing, induction of women, adjustment of complaints and grievances, investigations of new jobs for women, follow-up, transfers, discipline, and other matters pertaining to women's adjustment to the yard. Among other things, the woman executive had developed a good record-keeping system, the function and value of which she understood thoroughly. She had trained her field representative as a competent contact person for the central office, introducing new women workers to their jobs, following them up, making daily contacts with the women's foremen as girls were placed or transferred, reporting daily on the jobs available for women in the yard and shops, handling disciplinary problems, and keeping daily and weekly records of absence, separations, and accidents. Though large-scale expansion in women's employment was expected momentarily at time of visit, the well-organized personnel department was equipped to meet the problems that inevitably would arise, thus saving production time and turn-over.

In another private shipyard employing nearly 1,600 women in the summer of 1943 a similar organization was in force but without such smooth functioning. Its intake and placement procedure was especially satisfactory. The chief weakness was the lack of follow-up of women workers on the job; only problems so pressing as to reach the central office were attended to. The two field representatives working out of the personnel office were given little authority beyond fact finding and, in any case, were too few to shoulder counseling responsibility for so large an employment load.

It is to be expected that examples of the weaker or more imperfect approaches to the personnel function with women are the more easily found. The shipyards are still feeling their way. Women have been part of the picture less than a year in most cases, and consequently perfection can hardly be expected. It is more economical, however, to learn from others' experience than to muddle through. It is for this reason that a few examples of poorly organized personnel work with women are presented here.

In one yard the woman personnel counselor in the main office was too young and ineffective for the post, and the matrons employed in each department of the yard where girls were working had as their sole responsibility checking to see that the workers did not congregate to chat or smoke in the rest rooms. This was a fruitless and negative way of dealing with the nearly 550 women operatives employed. Policing has been found less effective than counseling as a method of teaching employees good work habits. It was promising, however, that the chief personnel officer, a man, was considering at time of visit hiring as his assistant a capable and efficient woman to take over the women's program.

Perhaps the most frequently encountered cause of failure in the women's personnel program is the fact that too little cooperation and responsibility for shaping or carrying out major programs affecting

the women workers is given women personnel counselors. A Women's Bureau field representative reported of a woman personnel executive and the woman interviewer under her in a large east coast yard that "their * * * authority is not very strong, and they are following rather than helping to form policies or procedures * * * it is probably no accident that the person selected as 'dean' appears to be lacking confidence and experience."

The situation in a west coast shipyard is described by a Women's Bureau representative as follows:

There is no clear-cut line of duties and authority. Miss X, who is supposed to be in charge of the entire women's employment program in all the _____ yards, is more of a public relations person than coordinator of women's counselor functions. Her activities are concentrated more on outside contacts, and she has little knowledge of the problems of the women in the yards. Hence, there is no central direction as to what the women counselors in the shops can and cannot do.

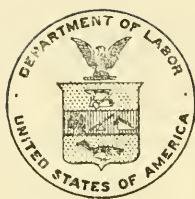
The women counselors who are most effective are those who have somewhat "bluffed" their way through and made foremen and yard people think they had authority when actually they had not. However, most of the activities of the counselors center around office work, and they have little contact with women out in the yards.

The women safety inspectors, on the other hand, are out in the yard constantly. And it has developed that they are counselors as well as safety inspectors because of their day-to-day contacts with the women on the job. Consequently, a friction has arisen between the two groups.

The chief women's counselor in another yard had to struggle with her immediate superior in charge of employee relations about every action she wished to take in the women's program. In still another case a woman with good background and a variety of experience reported that the shop and department supervisors refuse assistance from the main personnel office. Consequently, new policies affecting women workers had to be submitted to them with the utmost tact and in trepidation for the outcome. The woman personnel officer could accomplish little except by indirect approach even with the main personnel office. She had to grope her way and consequently felt most insecure in her poorly defined position. Yet she was well equipped to do an intelligent and worth-while job in women's personnel relations in this large yard employing nearly 1,500 women productive workers.

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- Women's Bureau. Special Bulletins:
2. *Lifting Heavy Weights in Defense Industries*. 1941. 11 pp.
 3. *Safety Clothing for Women in Industry*. 1941. 11 pp.
 4. *Washing and Toilet Facilities for Women in Industry*. 1942. 11 pp.
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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, Secretary

WOMEN'S BUREAU

MARY ANDERSON, Director



Progress Report on Women War Workers' Housing

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Progress Report on Women War Workers' Housing¹

INTRODUCTORY

Government and citizens are collaborating to overcome housing shortages for war workers in critical areas of the United States. Special emphasis centers on the acute problems of young women who seek living quarters in the community where they are employed in war industries or related service occupations. Some of the outstanding women's national organizations are awake to the need for permanent means of assuring more and better living accommodations at reasonable rates for young women working away from home, particularly those in lower-paid occupations and industrial employment.

From the outbreak of World War II, the Women's Bureau of the Department of Labor gathered information about housing facilities in the war-goods-production areas, with particular attention to accommodations for the women who inevitably must help man the industries. Personal visits to typical areas were made by the Director of the Bureau and investigations conducted in almost two score localities by field representatives from its staff. First-hand data were accumulated about housing, also other major factors that affect the well-being of women turning out the weapons of war. Numerous conferences were held with representatives of Government agencies and civilian groups, defining problems and developing solutions through cooperative efforts on the basis of known facts.

The Bureau, through its Director, called a conference at Washington, D. C., for January 21-22, 1942, assembling its Advisory Committee and the invited representatives of 25 national and international women's organizations. The objective, as declared in the conference report, was to find what could be done by Government and citizens to help the women in war plants become most effective in their employment. Imperative need was recognized for "a well-coordinated program involving training, placement, and maintenance of proper working and living conditions for women workers."

A special committee designated by the conference to consider community facilities for women in war employment found, from testimony of United Service Organizations representatives present and from reports on typical war-industry areas by the Bureau's agents, that at that time grave housing difficulties for women in many war industries were chargeable to (1) a scant supply of rooms for rent, (2) overcrowding in available rooms, (3) householders' aversion to

¹ "How Women War Workers Live," a summary of Women's Bureau field investigations during the winter of 1941-42, appeared in Labor Information Bulletin for August 1942. Both the summary and the present report were prepared by Sara Louise Buchanan of the Research Division.

women roomers, particularly to women in industrial employment, (4) inadequate room-registration facilities, (5) lack of inspection of rooms offered for rent to young women, and (6) a dearth of low-cost living quarters for girls in the lower wage scales, as in the service trades.

The committee found that in a few important areas housing difficulties were intensified by lack of proper planning in the construction of "duration barracks" for women workers. Isolated location, inadequate transportation; absence of eating facilities, dispensary provisions, recreational or social opportunities for leisure time; and nondescript, cheerless furnishings—these combined to drive girls away from the dormitory accommodations rather than to attract them.

In view of these findings, the conference adopted at its closing session certain recommendations, with special emphasis on housing for women war workers, to guide further action by the Women's Bureau and voluntarily participating organizations. The recommendations proposed these procedures: (1) Mutual cooperation of the organizations' national offices and the Bureau in obtaining and distributing information about women's housing problems in critical areas; (2) contacts by the Bureau with the proper Government authorities regarding improved livability of federally built "duration dormitories"; (3) emphasis by organizations on the adequate representation of women on local councils dealing with housing; (4) local educational campaigns to stir community interest in the housing of women employed in war industries and service trades; (5) for privately housed workers, to investigate the advisability of rent-control boards in each critical area and the need for reliable room registries.

Accordingly, for its part, the Women's Bureau sought and was granted collaboration with the Federal authority in charge of dormitory planning, and succeeded in effecting desirable improvements. It cooperated with the Federal agencies charged with stimulating community action toward improved living conditions for immigrating war workers, freely supplying useful field data acquired by its agents. Its office staff prepared handbooks and educational folders, designed among other things to acquaint community leaders and interested citizens with accepted minimum standards of services in housing. These were widely used by public and private agencies in setting up local facilities.

Early in 1943 the Bureau invited the women's organizations that participated in the 1942 conference to assemble for Bureau use reports from their local groups in critical areas about community action during the year that had passed in assuring decent, adequate housing at reasonable prices for young women immigrating to war industries. Specifically, they were asked to report on (1) local sources of information about available rooms, (2) means of advising applicants about the respectability of neighborhoods, and so forth, (3) extent of regulation of boarding and rooming accommodations, especially on standards of cleanliness, decency, and safety, (4) the achievement of the community in solution of housing difficulties, and (5) urgent continuing needs in terms of housing for young women.

It was believed that cooperation in gathering and submitting the data would focus anew the attention of local women leaders on the vital character of the housing feature, and stimulate renewed effort where necessary. Six organizations responded, providing reports from 44 States and on at least one-third of the critical areas, including

all the larger, more congested ones. Approximately two-thirds of these are principally war-industry locations; about one-fifth are combined military and industrial centers; the others are military training centers.

URGENT COMMUNITY HOUSING NEEDS

Community reports stress for the respective localities certain requisites essential to the satisfactory housing of war workers. Well over one-third of the areas reported are said to need more living accommodations; that is, rooms, light-housekeeping quarters, efficiency apartments, dormitories, boarding homes, or residence clubs. More than one-tenth need a central registry of classified available accommodations that can be recommended to a young woman. Considerable emphasis is put on a trained full-time staff to maintain the registry in current condition. Another tenth bid for effective supervision over boarding and rooming houses, based on accepted standards of respectability, sanitation, cleanliness, and services. Competent supervision is sought for dormitories and residence clubs.

About 5 percent of the areas mention a need for lower rentals; some urge the importance of coordination among the separate community agencies interested in housing; a small group mentions a need for further education among home owners to persuade them to rent rooms to young women employed in war plants.

SOME FACTS DEVELOPED FROM COMMUNITY REPORTS

Early 1943 found a majority of the war-industry areas with continuing problems in the housing of young women. Smaller cities and rural areas with war industries had perhaps the greatest perplexities, since available accommodations usually were insufficient to house the influx of war workers, and additional provision had to be made, either through conversion of existing properties or construction of new ones.

Priorities on essential materials and equipment, also scarcity of workmen, frequently delayed conversion or construction. Dependence then fell on rooms in private homes. Households were slow, generally, to take roomers as a new venture. Among those who opened their homes, a majority preferred men roomers; some refused to take women, especially young unattached women. The inevitable result was overcrowding in the limited number of accommodations available to women. In numerous cases these accommodations were substandard in services and overpriced as to rates.

This situation left little room for selection by prospective tenants. In fact, several reports emphasized that young women workers in their communities were glad to get shelter even in lodgings that ordinarily would not be considered for girls at all.

In a number of cases, tardy relief came through federally built dormitories or through residence halls provided by the local war industry.

About one in every five of the areas reporting is a combination military-industrial locality; that is, in addition to a camp, camps, or base of one of the military services, one or more war-material production centers have developed there. One of the difficulties arising in this type of area is the housing of wives and families of men in the

military services who go to visit them. Some landlords have found it profitable to rent their rooms to these applicants at transient rates, so are disinclined to rent to women war workers on a permanent basis.

A few areas with particularly alert leadership made advance surveys of accommodations, had organizations set up to deal with needs as they might arise from proximity of war industries or camps. By contrast, some other areas, consciously facing an influx of women workers to replace men called away to military service or to increase the volume of production, made no preparation to meet the situation and continued to welter in confused planning while thousands struggled for living quarters.

Congestion in these localities prevents an effective listing and inspection service. The rush of applicants for vacancies leaves no time for these important preliminaries; the staff provided for listing and inspecting is too small to survey the area or to keep the listings current. Usually in these cases the referring office relies on chance knowledge by some staff member as to the general character of neighborhoods.

The supplying of information about rooms and other living quarters is attempted in most of the communities through room registries of various types. In about one-fifth of the reporting areas the Federal Government set up War Housing Centers, and in most cases these have full-time staff and systematic listing and classification services. These centers also assist householders in conversion of properties to rental quarters, and conduct intensive educational programs appealing on patriotic grounds for the sharing of homes with war workers. Other general registries are operated by chambers of commerce or by a few private commercial offices. The principal permanent source of investigated, classified, and recommended rooms for young women is the YWCA. Reports from numerous areas attest the important service rendered in this respect by the association, also its activity in meeting other war problems of young women away from home. Numbers of employing firms refer their young women workers to the "Y" for room listings. Its greater usefulness in this field can be assured by stronger public support to provide additional personnel and office facilities in existing branches, and to establish many new ones.

Other service organizations, such as the National Catholic Community Service, Protestant church groups, Red Cross, Traveler's Aid, and the USO, have supplied limited lists of accommodations, particularly for transients, in many localities.

Additional sources include newspaper ads, referrals by friends or relatives living in the area, and, in many cases, doorbell canvassing by the prospective tenant, who does his or her own inspection amid keen competition for each vacancy.

Rent-Control Measures.

The Federal Office of Price Administration gradually exercised control, as need appeared, over rentals of living accommodations in all critical areas during 1942. Regulation covered dwelling space and boarding charges. Ceilings on rents were established as of dates intended to reflect a time of normal conditions for each particular region.

However, some difficulties resulted from ceilings. For example, rentals on new listings offered after the ceiling date could be, and sometimes were, boosted to unreasonable levels. Applicants paid the recognized overcharge without protest in order to get shelter.

Men Tenants Preferred.

Women seeking living quarters have had to face not only scarcity of space but pronounced aversion to their tenancy from many householders and boarding-house operators who had space to let. Quite generally, women are not desired as roomers, for reasons that are fairly uniform in character over the country. Objections to women as compared with men sum up in the following order from the reports:

1. Washing, ironing, cooking privileges sought.
2. At home more, disturbing family life.
3. Entertain more, especially men friends.
4. More critical of quality of service and accommodations.
5. Too great a responsibility.
6. Less profitable; can't pay so well as men.

This aspect of the housing problem changed somewhat with the departure of men tenants for military service, and landlords were left with vacancies. Women in war industries, now earning good money, began to be tolerated as essential revenue-producers.

Boarding and Rooming Houses Lack Standards.

Comparatively few well planned, coordinated programs in war-industry communities are aimed at improving the living conditions of young war workers. Some cities have effective supervision and regulation under a licensing system of boarding and rooming houses, but inspection bogs down for lack of trained investigators and public interest to spur the endeavor. Health and sanitation departments and law-enforcement officials exercise only nominal supervision in most places, checking up on specific places if complaint is made. Fire departments are reported in many instances as checking "on request of the owner." Evidence of any concerted activity by the community toward safeguarding of moral character and environment of boarding and rooming places for young persons is unusual. Much reliance is placed on knowledge of neighborhood character by personnel of the placement agency, especially in smaller cities.

Competent Group-Residence Supervisors in Demand.

Some dormitories provided by war-goods industries had little supervision other than a property manager. A few of the federally built dormitories, especially the earlier groups, likewise had scant supervision. Competent personnel for these responsible posts was not readily available.

Cooperation of Business and Industry.

On the whole, business interests have cooperated in tackling solutions of the housing problems of incoming war-industry employees. Conspicuous for its scarcity is the spirit of the newspaper that blocked establishment of a USO room registry in a southwestern locality on the ground that this move would reduce its advertising revenues; likewise, the selfish attitude of a few real-estate organizations in check-mating community efforts to provide temporary housing for war

workers. One of these in a great midwest industrial area ignored the excessive juvenile-delinquency rate among teen-age girls in its locality, and did little to help emphasize the Homes Use Program for augmenting decent living accommodations.

Municipal authorities in a few areas refused to suspend temporarily the zoning restrictions that in normal times are desirable to protect property values in residential sections but in wartime operate to prevent the sharing of desirable homes with war workers.

Cross purposes, selfish ambitions, and partisan jealousies cropped out in many places, handicapping moves to enlist community energies against housing congestion and related problems. Repeatedly community reports voice the need for coordinated effort among local authorities, agencies, and organizations—each interested in reaching effective solutions but unwilling to yield independent enterprise to pooled efficiency, even in the face of limited funds and dwindling staffs available to the separate groups.

Community Coordination Produces Results.

On the other hand, there is abundant proof of efficacy in cooperation from scores of communities. Complete and final solution of community problems arising from large immigrations is rarely attainable. But the method of assault on the housing difficulty for women newly employed in some congested areas, or in sparsely populated localities surprised by huge war industries, challenges applause for the community achievement and invites emulation by other areas yet struggling with similar problems.

Women's Organizations Supplied Leaders and Workers.

Unstinted acclaim is due the various women's organizations that shouldered cooperatively the solution of housing and other major war-time problems in fulfillment of accepted civic and patriotic responsibility. Only a few cases are reported where local councils refused the proffered help of an active women's group.

Also, grateful account should be taken of the varied tasks performed by a tireless army of volunteers, cooperating in vacancy surveys, investigation of listings, reporting on local situations, promoting share-the-home programs, and similar activities directed to improvement of living conditions in the war-industry communities. Though the community consensus declares the greater value of a paid, trained staff for a central room registry, in the absence of such personnel for most localities the contribution of the volunteer corps to the present emergency must be classed as indispensable.

HOW SOME COMMUNITIES ATTACKED HOUSING PROBLEMS

Representative specific methods that helped to relieve housing-shortage problems, particularly for unattached women workers migrating to war industries, are briefed in the following reports for their stimulative value:

In New England Area.

In an important industrial city many large homes were converted into small apartments by private industry. Girls in war-goods production were placed in private homes through the Home Registry Office.

Another city has a permanent residence hall, operated privately for working women at very reasonable prices. It also has several organizations that are prepared to help women find living quarters as they come into the area for employment.

In Middle-Atlantic Area.

A hustling city has an ample supply of rooms. All agencies cooperate with the volunteer defense committee in making accommodations available.

A western New York manufacturing center has an information service available to young women applicants through the foresight of its Citizens' Planning and Housing Council.

Another, through its Council of Social Agencies, keeps a supply of inspected rooms, revised weekly, in cooperation with all housing agencies.

In the Nation's Capital Area.

From a Council of Defense Homes Registry, set up by the Washington Housing Association with the principal social-service organizations participating, and manned by volunteer civilian personnel, evolved first the Homes Registration Office. It operated with a paid staff, including a corps of trained investigators assigned for inspection of listings, a clerical force to classify these according to minimum standards established in collaboration with the Health Department of the District of Columbia, and a closely coordinated referral system to a central office. A young woman arriving in the city for employment could be directed by the Traveler's Aid Service from train or bus station to the Homes Registration Office, and there receive cards listing two vacancies that she might visit; if neither of these proved satisfactory she could return for another selection. She was referred by the listing clerk to a transportation adviser, who gave her directions for reaching the houses.

This staff was federally financed, due to the dire need for the effective service of a full-time trained personnel in housing the Federal employees who poured into the area. Ultimately the War Housing Center replaced the Homes Registration Office, continuing its listing and referral function as to private-home accommodations with intensified effort under the Homes Use Program, and in addition sponsoring the conversion of large homes and other buildings into apartments and rooming houses. The center also handled the allotment of accommodations in the residence halls, temporary dormitories federally built for young women in war work, as well as the family units in low-cost multiple dwellings built by Federal authority in the area. Some of these residence halls and family units were for Negro war workers, but the number supplied for them is considerably short of the actual requirements.

Concurrent with this central effort to house Federal employees, several large departments, including the War Department, set up personnel counseling offices, whose functions included providing new employees with information on living accommodations and other essential services of the community. These were correlated with the center.

Also, other residence clubs for girls, such as the YWCA, with its permanent register of auxiliary rooms in private homes, carefully inspected and classified, strained their facilities to the utmost to meet

the mounting demands for accommodations. As elsewhere in larger cities, the choice of young women centered on close-in locations, due to the desire to be near the principal work area and recreation and eating facilities, resulting in overcrowding and great scarcity of rooms down town while accommodations in desirable outlying residential sections went unappropriated. Transportation facilities had to be readjusted as to schedules and routes and augmented in supply in order to utilize more fully the suburban-room resources.

In Southern Area.

The USO-YWCA of a shipbuilding city set up a Womanpower Conference that made a survey of conditions, including housing for women in war industry. Assisted by the Council of Social Agencies the conference presented definite recommendations, based on the survey, to the City Health Department, the Police Department, other city officials, and the transportation company. Joint efforts of the conference and the council had three federally built dormitories allocated to the women, and a reception center provided for newly arrived women workers until they could find permanent accommodations.

A small inland town's war-industry plant bought several large homes and converted them into dormitories for its girls.

A coast city reported that a huge shipbuilding plant had provided dormitories for its women employees. At that time, however, the dormitories had little supervision.

In Central Area.

A large city in this great industrial region reported a residence hall for working girls, established years ago by a wealthy donor, which provides accommodations at very reasonable rates. It is administered by the YWCA but is an independent establishment.

The same area reports a group of residence halls owned and operated by the National Women's Trade Union League. These homes cater especially to the unemployed woman seeking work and to students whose incomes are low.

A great industrial city has lifted its zoning restrictions for the duration so that rooms are available in choice residential locations.

A lake shore town planned to use as dormitories three large boats of a lake steamship line if necessary to meet the growing demand for rooms.

In one community dormitories for women were built at an ordnance plant and supervised by the State Defense Corporation.

In Midwest Area.

A progressive city of this region provides up-to-date information on housing accommodations through its chamber of commerce. Frequent surveys of facilities are made and the lists revised accordingly.

Another city in this area reports many building-conversion operations under the Homes Use Program; also good cooperation among the Defense Council Housing Division, the Federal Housing Authority, and the local real-estate board.

A large river city reports boarding homes operated by the Women's Christian Association, the Lutheran Church, and the Woman's Welfare League.

In one city the business and professional women's group initiated the room-placement plan for women war workers.

Another, through its USO, stressed continuously the housing needs of unattached women. Its program of education persuaded house-holders to change their former policy of "men roomers preferred."

Early in 1942 a capital city in one of the northern border States set up an Emergency Housing Commission of about 50 persons, representing its various community groups. It opened a housing office, which now cooperates with the National Housing Agency.

In Southwestern Area.

A housing authority here cooperates with the local Federation of Churches and social-service organizations in providing information and housing accommodations. War workers are reported to have adequate housing.

A State college for women considered in advance the probable need for war workers from industrial plants under construction nearby, also families of service men in adjacent army camps. The housing class of the Home Economics Department surveyed accommodations in hundreds of homes, classified homes and furnishings according to established standards, and made the listings available. The survey has been repeated in cooperation with the USO to provide additional accommodations.

Another city's war plant has built dormitories for many of its workers. However, there is a scarcity of accommodations for wives and families visiting their men in the army camps.

In West Coast Area.

The largest city of this area has had a girls' and women's Housing Bureau for 10 years. Presumably it provides recommended listings to applicants. It reports also a number of employed girls' clubs and residences sponsored by church groups.

Another city, a community of homes, waived its restrictive zoning ordinances for the duration of the war to permit the home owners to rent rooms to war-industry employees. Twenty county buildings were made into apartments for war workers under the conversion program.

A shipbuilding city reports that war apartments under construction by the City Housing Authority will provide accommodations for many single women.

At another industrial center where congestion persists, half the dormitories built for men employees have been converted for occupancy by women war workers.

SOME LONG-RANGE CONCLUSIONS FROM SURVEY REPORTS

A widespread need exists throughout the United States for clean, adequate, respectable housing at reasonable prices for young plant workers. As the standard of living rises, problems of accommodation for unattached persons become more acute. Families whose economic situation improves demand higher standards of housing and become less inclined to tolerate the crowding that may result from "roomers." This fact darkens the housing picture even more for the unattached employed woman, against whom a definite prejudice as to her tenancy already prevails because she likes to do her personal laundry; cannot

spend her evenings at the corner drugstore; entertains friends at home, especially men; insists on clean linen, good housekeeping, and so forth; sometimes is socially irresponsible; and usually has less income, so cannot afford to pay as much rent as a man can pay.

Many householders have shared their homes with young women war workers during the present emergency as a patriotic service. Will the actual experience with the modern young woman as a paying guest in numerous households vanquish much of the traditional prejudice against women roomers? The answer to that question is the responsibility of the young woman war worker herself. Indications are that some householders find young women quite satisfactory as roomers, and ask for more of them, after giving them a trial. If more approved home accommodations can be opened to young women employed away from their own homes during the period following the war, a much greater contribution than mere shelter will be made. Both Government and community leaders recognize the great influence exercised by pleasant environment, particularly that of a well-ordered home, on the individual welfare of the worker and ultimately on the quality of work produced. The social values of this particular contribution in terms of community gains have not been given the weight they merit by communities themselves.

For most of the employed young women it seems likely that group housing must be the answer, either in supervised residence halls and clubs or in rooming and boarding homes, especially for younger employees in the lower income groups.

The point is clear from the community reports used in this study that at present there is inadequate control and regulation of boarding and rooming houses throughout the United States. In view of the special public-service character of the boarding-rooming-house business, it is important that these controls be developed to meet the needs of women war workers. Community interest should be stimulated to give attention to this important function of government, also to provide and maintain for each locality to which young persons immigrate in numbers for employment a "bluebook" list of approved, recommended boarding homes. Such a list should be made available through room registries, plant offices, and other places of easy access, so that a young person, especially a young woman, could readily locate desirable, reasonably-priced housing accommodations.

A plan suggested as a wartime solution by one large industrial center could well be adapted for peacetime use. It proposes a full-time paid staff to register and regularly inspect all places where young industrial workers are housed. The staff could be connected with a local housing authority or board of health, and sponsored by such groups as industries, churches, educational systems, and welfare units; financing might be aided through chambers of commerce, employers' groups, and other sponsoring agencies; publicity could be given in railway and bus stations, the press, church bulletins, employing offices, and neighborhood drug stores. Thus the fusion of political authority and popular support can become potent in the regulation of commercial boarding and rooming houses.

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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, SECRETARY

WOMEN'S BUREAU

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A Preview as to Women Workers in Transition From War to Peace

By

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+

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WOMEN WORKERS IN WAR AND AFTER

The Four Freedoms must be assured in American economy at home, as well as in the world at large.

An important measure of this is in whether all workers can get jobs. Women, like men, need jobs to support themselves and their families.

Even before the war, women outnumbered men in the population of two-thirds of the major cities of the United States, and about one-tenth of all employed women were the sole support of their families. The death or disablement of many men will increase the need of women's work.

This country must use effectively the valuable skills of women workers, demonstrated markedly during the war period. Before the war they were a fourth of all workers.

Displaced war workers, both men and women, must be placed in new jobs. Women must be accorded opportunities for—

Adequate training.

Advancement in their work according to their abilities.

Equal pay.

A share in making policies related to their work and to American life.

Labor unions and professional organizations should—

Encourage the full participation of women who work in such occupations.

Enable women workers to show their abilities and to build seniority status.

See that women workers are paid the full rate for the job done.

Women themselves should—

Develop their own skills as far as possible.

Take active part in labor unions and professional organizations connected with their work.

Learn more about the great economic questions that affect them.

The need for women workers will continue in a variety of occupations. (See p. 4.)

A Preview as to Women Workers in Transition from War to Peace

Part I.—THE CHANGE TO PEACETIME LIFE

What will be the situation of the woman worker after the war? This is a question of vital importance to the Nation. It is being asked with increasing insistence by all groups and agencies concerned with the post-war world, and most of all by women workers themselves.

Employment and satisfactory conditions of work for women are part and parcel of sound economic conditions for the welfare of the whole people, and hence not to be overlooked or neglected in a time when every effort is to be devoted toward creating a better society. In regard to women workers, as well as to other elements in American life, what is done now, decided now, and planned now will determine to a large extent what can be expected tomorrow.

Close of the war will bring to an end, perhaps in many cases quite suddenly, much of the activity in which women have engaged in some of the major war industries, such as making ammunition, guns, ships, aircraft and parts, which will not be needed in the quantities now required. In fact, considerable numbers already were being laid off from various ordnance plants in the late months of 1943 and this continues in 1944.

Every effort must be made to find jobs for the men and women returning from the armed services and for displaced industrial workers as well. Returning servicemen have veterans' preference, and those who formerly had permanent employment are legally guaranteed their old jobs (or equivalent ones). Others formerly had only temporary work, and very many never before had a job. By the end of 1943 more than a million men had been mustered out of the armed forces, and 1944 is expected to add another million to these. Carefully worked out organizations are being developed to aid these men to find jobs and resume a normal life. Similar attention should be given to the needs of displaced workers, including women. The economic and family situation of women workers, the extent to which they have constituted a usual part of the pre-war labor force, and the nature of their own plans for their post-war life are subjects of field investigations the Women's Bureau now has in progress.

One of the important aids in finding post-war jobs for the women who expect to remain in the labor market lies in the fact that many articles curtailed during the war will be produced again to meet a large consumer demand, and some of these are industries in which in the past women have represented a considerable part of the labor force.

GOALS FOR MANKIND

The broad objective of the great struggle in which the United States is engaged should be kept continually in the forefront. It has been defined as the establishment for mankind of Four Freedoms: Of Speech; Of Religion; From Want; From Fear. As the war continues it becomes increasingly clear that action toward these ends in the economy of this country actually is an integral part of the struggle, and cannot await the close of hostilities—that an essential part of conducting and winning the war is to establish the Four Freedoms firmly in the economic life of America itself.

AFTER THE WAR

Problems To Be Solved

Jobs for those returning from war service.

War workers shifting to new jobs.

Decline in employment from the war peak.

Methods to tide workers over until new jobs can be found.

Speed and method most desirable in mustering personnel out of the armed forces.

Situations in localities contracting after war expansion.

Rapidity with which plants can convert and begin peacetime production.

Extent to which rationing can continue until production of new goods can restock markets.

Policies to be pursued by Government in settling war contracts and disposing of goods.

Favorable Features in the Economic Scene

Demand for new jobs will be spread over a long period; those requiring work need not all be placed at once.

Need for workers in—

Reconversion of plants.

Construction of homes and community facilities.

New demands for goods—

Consumer goods not made during war.

Replacements in worn-out production machinery.

New machinery for conversion of plants to peacetime uses.

Buying power accumulated during war.

Reserves set aside by manufacturers for post-war reconversion of plants.

More means to tide workers over transition (e. g., unemployment insurance).

Plans being made to solve problems, by Government, labor, business, community groups, private agencies.

One of the most important goals for this country may be stated in very general terms as the organization of efforts to satisfy the almost universal desire for a high level of employment and a better standard of living. Freedom from want and freedom from fear both require that jobs must be available for persons who need them. It is encouraging that many agencies are working toward these ends. Both the AFL and the CIO have special post-war planning committees devoting much work to determining the most advantageous lines of movement toward these goals. Adequate social insurance is an important subject that is currently to the fore because of anticipated needs in the period of transition to peacetime production.¹ Business interests are making vigorous plans for full employment through their Committee for Economic Development and other agencies.² The National Planning Association has been formed to promote the cooperation of business, labor, agriculture, and Government.³ Its representatives consider that no group is self-sufficient, all are interdependent. Together they recognize collective bargaining and the need for security, participation of all in productive enterprise, organization and development of technical and commercial research.

PICTURING THE POST-WAR PERIOD

The general picture after the war will be one of large numbers of men returning from the services and needing jobs, large numbers of workers leaving war industries and transferring to other work, much shifting of population from war-industry areas to home States or elsewhere. This period of transition already has begun, and bids fair to continue on an accelerated scale. Employment cannot be expected to remain very long at the war peak. However, it is most encouraging that business management, labor, and Government have efforts afoot to attain a permanent employment level considerably higher than that before the war.

WOMEN AFTER THE WAR

The situation of women will depend to a large extent on many economic factors. Foremost of these, of course, are the extent to which the entire economy can develop a high level of employment and the extent to which the industries expand that require the particular types of work women do best. Of great importance will be the opportunity for employment of men at wages sufficient to support their families, since many women who now have a real job at home as well as at the factory will leave the labor market if the male earners receive enough pay.

There are many other factors that will share in determining how far women will remain in employment—for example, the extent to

¹ See for example: For the Nation's Security, pamphlet prepared by the Department of Research and Education, C. I. O., 1943; The American Federationist, June 1943; Survey Midmonthly, April 1943 and May 1943; War and Post-war Social Security, a symposium by various writers, published by the American Council on Public Affairs, 1942.

² See for example: Publications of the Department of Commerce, Bureau of Foreign and Domestic Commerce, 1943: Markets After the War; Community Action for Post-war Jobs and Profits. Also articles by Paul G. Hoffman in the American Federationist, June 1943, and the Survey Graphic, May 1943.

³ See their Joint Statement, April 1943.

which plants have been engineered for women's performance and employers convinced of its effectiveness; the skills women have demonstrated; the demand for work in industries that in past years have employed many women. Operating against women is the fact that as a class they have entered industry more recently than men and have relatively short seniority records. A strong psychological factor that does not favor women is the tradition that they do not support dependents, and that this is in a considerable degree false must be reiterated continually, with new evidences, before the mistaken theory can be overcome.

In summary, the general outline as to the present undeveloped stage of thinking and action on war and post-war policies for women workers is somewhat as follows:

Industry in general has provided no clear-cut policy.

Women have been considered in terms of "a minority group," though before the United States entered the war (that is, in 1940) they were over 24 percent of all workers, while the minority group next in size (Negroes of both sexes) constituted only 10 percent, and "children" (under 18) less than 3 percent.

Chief discussions as to women's employment have centered around:

The extent of their entrance into employment.

The types of work they are doing.

Satisfactory conditions surrounding their jobs.

The extent to which they will retire from the labor market.

The Women's Advisory Committee for the War Manpower Commission has stated basic policies for employment and retention of women workers. (See p. 22.)

Women's organizations have defined policies for the retention of women workers.

In 1940, something over 11 million women were actually employed, and about 2½ million others were seeking work. Even then women were practically one-fourth of all workers, and this proportion has risen through the war period to one-third in the latter part of 1943. After the war, the number of women who will need to remain in the labor force probably will be at least 2 or 3 million higher than the number in 1940. A much larger proportion of these than formerly will be women aged 45 to 64 years.⁴ There is evidence that the need for women workers will continue along the following lines:

In producing consumer goods, where women long have been employed, as in the electrical, shoe, textile, food, jewelry, and other industries.

In service industries where shortages will continue acute, as in restaurants, laundries, households, and various selling trades.

In community services, as in health, welfare, social security, child care, and recreation, both in America and in reconstruction elsewhere.

⁴ See Durand, John D. *The Post-war Employment of Women in the United States*. In *International Labor Review*, December 1943.

In specialized technical and professional work, as in medicine, nutrition, education, rehabilitation of handicapped, research, and various scientific services.

In the manufacture of goods to help in the reconstruction of devastated countries, as well as the replenishment of depleted stocks in this country.

In various business and clerical operations, as in secretarial work, statistics, and accounting.

WOMEN'S SHARE IN THE SUPPORT OF FAMILIES

An important feature of the post-war period will be the extent to which it will be necessary for women to support dependents. This is no new phenomenon, though it has become increasingly marked through the last half-century. In fact, this need has existed since much earlier times, and the way in which it was met by many women in the American colonial days has been described with interesting detail in at least one book on that period.⁵

In recent pre-war years, Bureau of Labor Statistics studies of income in some 131,000 families indicated that practically one-fifth of the employed women were the principal wage earners in their families. A Social Security Board analysis of reports on more than 700,000 city households has shown that women were at the head of a tenth of the families of 2 persons or more that constituted single households. A study made in Cleveland by the Women's Bureau showed that women wage earners contributed all the funds for the support of about a third of some 2,000 families with women wage earners reported.⁶

The death of many men in the present war, and the consequent depletion of male population, will require still more women to contribute to their families' support. Even as far back as the date of the 1930 Census there were more females than males in 66 of 93 major cities in the United States. By 1944, this had become the situation in the country as a whole. Support of the families of handicapped men is likely to increase considerably the financial obligations of women workers, in spite of aid tendered them by the Government. Reports in April 1944 give total casualties of the Armed Forces as 189,300—43,800 dead, 70,900 wounded, 41,300 missing, 33,300 prisoners.

The numbers killed and disabled are not distributed evenly over the country, and hence the effects of their loss will be greater in some localities than in others. In the first place, they are concentrated at certain ages, selectees being from the more youthful group of 18 to 38 years. Furthermore, the age distributions in the population differ by locality, and this is an added reason why the severity of the losses will be greater at some points than at others. This will mean that greater proportions of the woman population in some than in other localities must assume a large share of the support of their families.

⁵ *Women's Life and Work in the Southern Colonies*, by Julia Cherry Spruill. University of North Carolina Press, 1938. Chs. XII, XIII, and XIV.

⁶ For summaries of earlier studies, see *Women's Bureau Bull.* 75; for additional data, see *Women's Bureau Bulls.* 148, 155, 168, and 183.

WHAT HAPPENED TO WOMEN AFTER WORLD WAR I

What can be learned from the situation after World War I as to the employment possibilities for women? It is true that as plants cut down forces at that time large numbers of women lost their jobs, for the most part quite suddenly. In many cases the family earners in the armed forces, if any, had not yet returned, or had not found jobs. Many families suffered severe hardships after loss of work by their women earners.

However, an analysis made by the Women's Bureau of the records of some 500 firms engaged in war production in that period showed that though woman employment had been cut down so severely—more than 30 percent from the war peak—still these firms employed about 40 percent more women than before the war. This was in manufacturing industries. Demands of today and more efforts toward better planning than were seen in 1918 may develop a situation at least as good now as then. Moreover, expansion well above the pre-war level may be expected to occur in civilian service and supply industries.

In the various months of 1940, over-all employment figures showed from 10.5 million to 11.2 million women actually at work. An addition of 40 percent to this would give about 15 million women at work. Planning for employment should take account of some such number of women. This would mean retirement of 2 or 3 million women if the war peak should rise as estimated to some 17 or 18 million.

After World War I, full plans were worked out by War Department officers for demobilization to proceed according to occupational needs, so that returning men could be assured of finding jobs more quickly. However, authorities within the War Department were not in agreement as to the method of demobilization, and General March ordered demobilization by military units. It was claimed that to separate first those with certain skills would disrupt army units and require regrouping of men, thus slowing the process of demobilization, and that it would be impractical for the Army because of varied overseas locations of men with a given needed skill. Routing of soldiers to home draft boards for final release, thereby avoiding danger of labor surpluses in large cities, was declared impractical, largely because of administrative difficulties.

Result of demobilization by military units and from centralized camps was lack of placement in jobs, and concentration of unemployed men in cities, owing partly to the fact that instead of actually buying tickets to their preferred destinations the Government only issued cash to the men. After this developed, a partial effort was made to release more rapidly men needed in certain industries. The problems to be solved at such a time admittedly are very difficult, and neither method proved wholly satisfactory. It was remarkable that demobilization was practically completed in about a year's time. In any case, however, the people will be too impatient for the return of their men to wait for economic planning at home. Hence this must be done thoroughly ahead of time if it is to have much effect.

Part II.—FACTORS AFFECTING WOMEN'S OPPORTUNITIES

Women's post-war job opportunities will be influenced in a considerable degree by the wartime situation of working women in several respects—for example, the skills they are developing, the extent to which they are upgraded, their seniority status and union membership, the attitudes of employers toward their work, the extent to which plant processes have been adjusted to women's performance, the period of time over which hoccupation shifts will occur.

SKILLS OF WOMEN WORKERS

In the past the opportunity given women workers to learn and to exercise skills has been narrower in range than men's has been. In consequence, very large numbers of women have been concentrated in a relatively small number of occupations. Women were little thought of in connection with other types of work, and so they continued to be given little opportunity to develop additional skills.

The war situation has changed that considerably. With shortages of men workers, women have been employed in a greater variety of occupations than before. Thus they have been given new opportunities to acquire and to develop additional skills. Many of the processes required on war goods have called for operations to which women's nimble fingers, delicate touch, dexterity, and perseverance were admirably adapted. Industry has learned that women can do well many kinds of work for which before they were not considered. This will be of great advantage to women in the future. The extent to which they can make themselves effective in doing an A-1 job will be a large factor in determining the numbers of women who will be employed after the war.

Upgrading On the Job.

Unfortunately there are many cases where women still have been given far too little chance to be upgraded to their highest skills. In 1943, the National Industrial Conference Board analyzed reports from some 130 plants, chiefly in heavier metal industries, plants that had employed relatively few women or none. In nearly 60 percent of these plants there were no plans for advancing women from the top production jobs they held at the time of reporting to more highly skilled jobs. Moreover, numerous instances are reported of the placement of women in jobs that are not in the usual line for the job progression; in such blind-alley jobs neither proficiency nor length of service can bring these women beyond a limited early stage of the work. If this situation continues, it will be a great disadvantage to women after the war, and in fact Government agencies are finding promotional discrimination against them as one of the major reasons

why women quit jobs in war plants. Whether or not this continues may depend largely on the length of the war and the consequent stringency in the labor supply. It also will depend to some extent on how proficient women show themselves to be.

Women's Bureau surveys indicate that in some of the newer or better organized plants, as for example in aircraft or electrical industries, systems of upgrading are fairly well worked out, and women find some opportunities. The workers' progress often is influenced to a considerable extent by agreements with the unions as to wage increases, and seniority is likely to be of major importance. However, in many instances there is relatively little opportunity for women to advance to any considerable extent. This sometimes results from a general lack of any well-organized system of upgrading toward the better jobs. In some cases promotion is left to the department foreman. In others there is no progression except such as the worker makes by increasing her earnings under a piece-work system. The following cases illustrate the sharp limitations on women's opportunity for progress.

In a midwest ordnance depot reported as fairly typical of the general situation there have been very few promotions for women. Occasionally workers of merit and with several months of service are paid less than workers who came on the job recently. There have been opportunities, now and then, for women to advance to crew-leaders and various grades of supervision, and there are several women in these jobs. However, there is no definite plan as to what they should be paid in these jobs. Some crew-leaders and supervisors receive no more than the workers under them, while some are put in a classification that pays more.

In a western naval station upgrading to helper classification is automatic; beyond that it is a matter of merit, though there do not appear to be special standards for determining whether a person should be upgraded. Women are being taken in as helpers, instead of starting as mechanic learners. It is generally felt that women will not get beyond the helper classification, except for machine operators in the machine shop. Some beginning boys are mechanic learners.

Packers and feeders in a midwest match factory are upgraded to very simple jobs as machine operators, but upgrading takes place not primarily for women but in the plant's machine shop where men are highly skilled.

In a western shipyard there seems in general to be slower upgrading of women than of men. Some women report that, though allowed to become trainees (in the helper classification), they are kept at that point after they have finished the training courses and passed the tests set by the unions.

In several southern textile and clothing mills recently reported by Women's Bureau agents, there is little chance for upgrading. In one of these making clothing, workers do not want to be shifted to different jobs, but this apparently is largely due to loss in piece-work earnings on a new job. A nearby plant with a similar product forestalls this difficulty by guaranteeing workers their average piece-rate earnings on their regular job if they go to unfamiliar work.

Reports from a large aircraft plant show no women in office work permitted to advance to group leaders, regardless of seniority or ability. Recently a group leader went on vacation and a young boy was promoted to group leader over the woman who had trained him.

In an aircraft plant in the East, male trainees were paid more than the woman training them.

That similar difficulties also beset women in other fields is shown in the experience of professional women in their efforts to progress toward their best service. For example, it was not until a year and a half after Pearl Harbor that a law was passed permitting women doctors to be commissioned in the U. S. Army and Navy. At least one outstanding woman specialist had long previously tendered her services to Great Britain, where she was accorded rank more appropriate to her abilities. In mid-1943, the president of the National Federation of Business and Professional Women's Clubs stated in convention:

I solemnly charge that the war is being slowed down here in America by the failure of the Government and private enterprise alike to use women's brains and training in their specialized fields.

WHAT EMPLOYERS THINK OF WOMEN'S WORK

The appreciation of the work women have been doing has been widespread. In August 1943, on the first anniversary of the Army order to replace draft-age men with women wherever possible, Under Secretary of War Robert P. Patterson stated:

The women of America have responded ably and gallantly to the call to service the war has made upon them. Nowhere is this more evident than in the plants operated by the War Department. They have supplanted men at the bench and the lathe; they are doing civilian work in the nine Service Commands efficiently and in increasing numbers.

In the arsenals, in the ports of embarkation, in the motor centers, in all the War Department installations, their skills are invaluable and their devotion to duty is proven. They are testing guns, making ammunition, fixing motors, sewing uniforms, inspecting ordnance, driving trucks, doing many of the thousand and one jobs that are necessary to keep the machinery of war moving.

I salute them for their faithfulness, their cheerful courage, and their patriotism.

Plant after plant has testified to women's efficiency on jobs new to them. A few of innumerable examples that can be taken from Women's Bureau files and other sources are as follows:⁷

In a survey of aircraft assembly plants the Women's Bureau found that some of the foremen who had expressed a presumptive opposition to the induction of women in their sections were among the most effusive in their praise of the quality and quantity of the work done by women under their supervision.

⁷ See also further list of instances in Women's Bureau Bull. 196, pp. 5 ff.

A large metal plant reported to a Women's Bureau agent that women were found more careful of materials, and large savings were being made by less spoilage of tin plate.

An official of a major motor company reports women workers as precise, patient, eager to learn, eager to make good, and apt to follow detailed instructions to the letter. A good example of the meticulous care they exercise occurred recently in the plant. A new female inspector instructed to use a measuring scale found the counterbore of an oil pump adapter to be one-sixteenth of an inch oversize. The job-setter and two male inspectors had previously checked and approved the job.

A woman at a large electric and engineering company in Ohio was given a 10-weeks' training course in the standards department. In less than 5 months she had acquired a surprisingly high degree of facility and had come to be considered a top-notch time-study woman on hand and machine operations.

An employer-relations representative of the USES states that women doing acetylene-gas welding passed Army-Navy tests two to one better than men.

Of 146 executives who commented on this subject to the National Industrial Conference Board, nearly 60 percent stated without qualification that the production of women workers who were on jobs formerly held by men was equal to, or greater than, that of men on similar work.

The National Safety Council, in a study including about 700 women commercial drivers—truck, bus, and taxicab—found them more willing than men to listen to instructions, and more likely to obey speed laws and stop signs and to keep their windshields clean.

Will They Retain Women?

Such examples as the foregoing could be multiplied many times. Moreover, the satisfaction of employers with women's performance has been a very practical advantage to women. Many employers have been so enthusiastic over women's work that they have stated an intention to retain women after the war. Examples follow.

The president of the United States Chamber of Commerce recently expressed his opinion that "women will be able to keep almost every gain they have made in industry—in numbers employed, in better types of jobs, in higher wages."

An official of a large midwest electrical company stated to a Women's Bureau agent that women have proved themselves capable on machine jobs, and that probably a higher proportion will be retained than was employed prior to the war.

Women's Bureau field agents found women at work on all types of precision inspection in the manufacture of gear cutters in a machine-tool plant visited. Women were proving so efficient that the foreman thought possibly they always would be kept on this work, even after the war. They picked up the work faster than men, followed instructions better, and were more careful in making precision measurements and checks.

A prominent shipbuilder has stated repeatedly that 50 percent of the women workers will want to continue in the labor force after the war, and that he intends to employ them.

A high officer of a major motorcar company stated recently that his firm employed 40 percent women as compared to 15 percent before the war, and that many of these want to stay, so the percentage may continue above that before the war.

Officers of a firm making aircraft engines and parts told a Women's Bureau agent that their company never again will use men on inspection, which is a considerable part of their process, though women probably will not be retained to any great extent in the machine shop after men return.

A major aircraft manufacturer and his executives expect to continue employing women in technical work, and maintain that women workers who are being upgraded and who want a career can continue to work after the war. Another states that women have established themselves as logical permanent employees in highly technical shop work, as personnel counselors, and in engineering.

An official of the American Hotel Association stated that women will be encouraged to remain on the job, as "We are convinced there is a future for them in our business."

A major telegraph company expects women to be able to keep jobs as operators after the war.

The engineering laboratory of a large automobile company that employed only one woman before the war in scientific work now has 160 and wants more.

PLANTS HAVE BEEN FITTED FOR WOMEN'S WORK

Many war production plants have made changes in machinery and arrangement of work to adapt jobs for employment of women workers. In some instances entire new plants have been built with an eye to the efficiency of women workers. The shift of these plants to peacetime production after the war will be greatly facilitated by continuing to employ women on the jobs and at the machines designed for them.

In some of these cases, rotation with other jobs has been arranged where continuous work at one process would be too tiring for women. In others, fewer duties are grouped into individual jobs to fit them for performance by women. Elsewhere a rearrangement of the work is necessary, as for example in some machine-tool plants where lighter parts in the machining departments may be processed by women separately from those that are so large and heavy that men must handle them.

Innumerable instances could be cited of the installation of cranes, hoists, and other lifting devices that can be operated by women, thus enabling them to do jobs that otherwise would be too heavy. For example, in a large aircraft-engine plant, inspection of cylinder barrels for tool marks and scratches requires removal of the 50-pound cylinder from the conveyor, tilting it for proper lighting, and rotating it so as to examine the entire inside of the cylinder. A welded tilting carriage easily operated on a wheeled platform eliminates the need of lifting and enables women to do the inspecting.

The Women's Bureau has reported a number of plants that have installed lighter jigs, dies, fixtures, and holding devices to facilitate

women's work. Often these may be made of some of the newer plastic materials. In one aircraft plant, for example, steel jigs too heavy for women were replaced with masonite jigs weighing less than one-tenth as much. A large New Jersey metal plant has installed modified jigs and dies for engine and turret lathes, cylinder and tool grinders, and milling and broaching machines. Other examples are as follows.

A tool company in Ohio has introduced a small light tool to aid in handling rivets. It holds 50 rivets at a time and has a special nose jaw that keeps a single rivet ready at all times for inserting in the hole of the metal. Another tool company provides women with long-handled wrenches, which require less strength than the short-handled and enable women to do more tightening of parts.

A Michigan factory formerly making automobile parts, now engaged in manufacture of machine guns, has made extensive changes to fit more jobs for women. Conveyors were installed to slide parts from one machine to another, lighter fixtures have replaced heavier, machines fitted with automatic stops and new guards, fixtures and bench vises designed to hold parts during operation, and machines and benches adjusted to women's height.

A very large tool company has built its plant and designed its machinery with the express purpose of work for women. It has provided machines of proper height, adjustable chairs, foot rests, electric-button controls instead of levers and wheels, and weight-lifting devices. On a spinning lathe, a hand lever that took all the strength of a man to move has been lengthened by a 2-foot extension so that it now can be operated by a gentle touch. Features especially planned for women's safety include elimination of hand feeding on grinders, installation of metal guards and shatterproof glass on straightening presses to safeguard against flying metal pieces.

It is extremely likely that these companies which have found women's performance satisfactory, and which have engineered large sections of their plants for women, will continue to employ many women. This is not to say, however, that they will not have many places for returning men. Many women workers will not care to stay on when their men return from the service. The heavier metal industries will have an important role in post-war retooling and production of needed goods in the early post-war periods, and these should afford many jobs for men, since women that have been so employed during the war may be considered unlikely to remain to any preponderant extent in heavy metal industries.

SENIORITY STATUS OF WOMEN

At any period of job shortages, the seniority status that workers have been able to develop greatly influences their chances of employment. The many women recent entrants to the labor market naturally have not yet built up long seniority records. Their chances will be limited sharply in the face of men who return with longer records. For example, in one of the outstanding War Labor Board cases dealing with equal pay for women on the job, the Board agreed that women transferred to men's jobs for the duration would acquire no

seniority. In some cases women have skipped a job considered unsuitable for them and been placed in a job with a higher rate but only on a temporary basis of tenure.

Many plants have arranged for an automatic extension of seniority for their permanent workers called to war services and afterward returning to the plant. For example, a study of some 250 companies showed that nine-tenths of them provide full continuous-service credit for employees on military leave. In another study of 300 labor agreements, 75 of them signed in 1943, however, no specific listing was made of any of the women now in armed services such as WACs and WAVES.

There will be many questions as to workers who had only a temporary status before leaving for war service, and also as to those never having worked in the plant. Reasonable seniority provisions should give women with continuous service in a plant in the war period precedence over persons never having worked there. Examination of such provisions, however, indicates that it is very likely that the plant seniority practices under the clauses of many union agreements give women workers very inadequate protection.

For example, some agreements definitely provide that women's occupation of jobs formerly held by men shall be for the duration only. Some agreements give women employed at time of signing the agreement full seniority rights with men, but for women employed after that time set up a list for women separate from that for men. Some agreements provide for the seniority of women as "separate and distinct from the seniority of men." Agreements fixing seniority by department only may affect women and men quite differently. Other agreements are so vaguely worded as to permit interpretations that are of disadvantage to women.

Among special sufferers from lack of seniority may be large numbers of married women who have responded in good faith to their country's call to war production. In many cases such workers may desire to leave their industrial jobs. But it must not be forgotten that there are numerous instances in which their financial assistance is needed by the families, and the aftermath of war is likely to add to this number. An example of their probable treatment in too many cases is illustrated by recent amendments to the unemployment compensation act in one State that provide that plants formerly having a rule barring married women from employment may reinstate this rule immediately after the war. Married women workers of these plants will at once lose their jobs, and probably will not be eligible to receive unemployment insurance to tide them over this transition period in their lives.

The extent of this problem may be indicated from a sample of 35 ordnance, aircraft, and other war industry plants, in half of which at least 50 percent of the woman labor force were married. Some employers took on married women by preference, with the idea that when lay-offs came the husband would be a wage earner and the wife could go. But many of these male wage earners may not return, or may be disabled, and it cannot be assumed that these married women can automatically return home.

SPREADING THE TRANSITION

It appears at present that the war may be completed in some areas while still in progress elsewhere. This suggests that needs for reemployment may be spread through several months or even years instead of being concentrated at one time. This will afford better opportunity for placement. In effect two major wars are being fought, each composed of several areas of combat. As parts of these are completed, men are released for other areas, and some are enabled to leave the battle fronts. In fact, many service men already have returned and are fitting into their old jobs or into new ones. To the extent that they can be permanently placed, the solution to employment problems is being stretched out over a considerable period.

In December 1943, the estimate for men mustered out of the armed services for medical reasons involving hospitalization was 35,000 a month, with some 35,000 more discharged for reaching age limits or for disabilities not needing hospitalization. The War Manpower Commission has been placing these men, thus lessening the number to find jobs at the war's end. Something over 1 million were returned to civilian life by the end of 1943.

At the same time war production needs have been shifting markedly, both as to goods required and as to areas in which they are manufactured. During the summer of 1943, for example, a number of ordnance plants were curtailing output and labor force, and their workers shifting to other jobs or leaving the labor market. This situation has continued in various localities since that time. The War Manpower Commission fixed manpower ceilings in various industries and localities; for example, in October 1943, Seattle shipbuilders were ordered to make certain reductions in force. During November the number of areas short of labor dropped from 77 to 69. It is probable that in many cases the saturation point in employment has been reached. Workers already are making adjustments, and as a result fewer of them should be seeking jobs at the time soldiers are returning in the greatest numbers.

PLANT PLANNING FOR POST-WAR PRODUCTION

The extent to which war manufacturers have been able to look ahead to their business after the war is an indication as to possibilities of full employment of the labor force, including women.⁸ Many of the larger companies have well-developed plans for production and marketing in the post-war period, whether or not these require a large extent of conversion of their plants or promotion of a new product. The Committee for Economic Development makes suggestions to individual firms on how to proceed with such planning. The National Association of Manufacturers recommends that every company establish "rainy-day" reserves for conversion to peacetime activities.

Some companies expect to intensify their efforts in pre-war lines, many to develop related lines, and a smaller proportion to branch out into entirely new fields. A major electrical company at an early date urged its operating departments to draft detailed plans for reconver-

⁸ See also Capacity to Employ the Labor Force, p. 18.

sion of facilities to post-war volumes of manufacture, to keep these up-to-date, with estimates of money and time required for them, to train skeleton crews, develop processes, carry forward redesigns of new products, and study necessary sales problems and personnel.

Aircraft companies have studied post-war needs in their own and related lines, their industry being recognized as having some of the most serious transition problems. A major one has investigated 140 different products for possible post-war manufacture. Some have especially considered plans to make refrigerators, stoves, washing machines, radios, and metal furniture after the war. Some plants were converted to making plane parts instead of civilian supply goods, and may very well return to their original product.

Of more than 300 war production plants recently visited by Women's Bureau agents, more than a fifth made statements that showed a definitely favorable attitude toward employment of women in the post-war period. Of 25 aircraft plants reporting on this subject, 15 had a favorable outlook as to employment after the war, expecting to continue production. However, others pointed out women's lack of seniority and some said they expected to give jobs to returning men and probably would not use women. Twenty machine-tool and other metal plants and 6 manufacturers of engines and motors predicted good employment for women, a number of them declaring women had proved their worth and would be kept.

Many war manufacturing plants, possibly a majority, particularly of those not directly making munitions and firearms, may shift to civilian production without a break. This would be true, for example, of those making shoes and textile goods, which are major employers of women. A company making a rubber life boat is promoting its use as a fishing boat, since it can be folded for carrying, yet will hold men, tackle, and fish.

Other firms will resume the making of pre-war goods again in demand, after taking a period for reconversion to peacetime uses. The motor industry may set the pace for this, and probably will require over 6 months to get into production of a pre-war model car. For the first year after reconversion, one large automobile company proposes to employ 30 percent more workers than in the last pre-war year, with production doubled. The electrical industry, an important employer of women, may require not more than a few weeks to convert again to peacetime manufacture.

A survey by Factory Management and Maintenance in late 1943 indicated plans for extensive capital expenditures. The coverage included more than 700 plants in over 160 industries. Of these, 219 plants had such definite programs as to be able to state dollar value of improvements and extensions they intended to make, which totaled more than 42 million dollars. This included expenditures for new equipment and repair of equipment, and also for new construction and repair of existing structures, planned by more than 40 percent of these plants.

Many plants are continuing or even intensifying their research during the war, and in this way products have been developed and inventions made that have been of immediate importance and that may have far-reaching uses after the war. An outstanding example of this that

comes at once to mind is the rubber industry. It is probable that some of the synthetic rubbers, which are more resistant than rubber to deterioration from the air and temperature, will find many peacetime uses, as for hospital necessities, raincoats, household aids, floor coverings, hose lines, equipment coming in contact with chemicals or oils, and so on. One large tire company has developed a tire-tester that spots by sound waves defects in used tires, and a neutralizer that removes static from radio waves. A plastic-foam insulating material has been developed. An air conditioner for homes is a product now being promoted for more widespread post-war use. Plastic resins resistant to intense heat have been worked out by a large glass company and a chemical company. Synthetic resins are usable for coating fabrics against both fire and water and are expected to find a myriad uses, such as for packaging food, for covering seats in trains and restaurants, for making shoes and luggage, and for flameproof clothing and rainwear.

Part III.—FACTORS IN THE GENERAL ECONOMIC BACKGROUND

Thus far in this bulletin primary attention has been paid to certain specific factors that outline the situation of women after the war, with a particular bearing on their opportunity for jobs. But the entire direction of America's post-war economy will have a profound effect on women. It has been pointed out that the extent to which a high level of employment can be developed is of major importance to women's opportunities, as is also the extent of demand for labor in the particular industries to which women's skills are best suited. Other features in the general economic background that will outline the place that women may take will be suggested in the paragraphs following.

THE SHIFTING POST-WAR LABOR FORCE

It is expected that at least some 8 or 9 million men will be returning from the armed forces and it is likely that the great majority of these will seek jobs. It is probable that at least 6 million workers will be displaced from war industries, and that many additional workers will find job shifts necessary. One of the hopeful factors is that not all these will be seeking jobs at one time. Already considerable shifting is occurring. Perhaps more than a third will be demobilized from armed forces and industry before the war ends, and placement of these is in progress. Some estimates see about 6½ million persons released in the year after European victory, a somewhat larger number in 6 months after final victory, remaining smaller numbers over the following year's period.

Size of the Post-War Labor Force.

In April 1940, the labor force consisted of 54 million persons, of whom 45 million were employed. The labor force estimated for mid-1944 is over 65 million, more than 11 million of these in the armed forces.

Industrial planning is based on employment of 54 to 57 million persons.

Some 5 or 6 million persons may leave the labor market, including older workers, younger persons wishing to continue education and training, and some of the women newly drawn in.

Probably at least 1 million from service personnel will be interested in more education or training, according to the Committee of the Armed Forces for Post-War Educational Opportunities for Service Personnel, and many younger men and women now in the civilian labor forces will be added to this. Of the ages 14 to 19 years, nearly half a million more girls than normal are reported in the labor

force. The Office of Education estimates that from 2 to 3 million young men and women now in industry or the armed forces will want part-time educational opportunities after the war.

Capacity to Employ the Labor Force.

A minimum estimate to provide full employment would require that the national output of goods and services be maintained at a level of 110 to 120 billion dollars (at a price level not inflated). To uphold living standards some 77 billion dollars' worth of consumers' goods must be produced.

There is little question as to the physical capacity of plants and equipment to produce enough to keep people employed and furnish them with necessities. The more serious problems are likely to be as to the possibilities for developing markets, one of the partial solutions of which may be in the satisfaction of delayed demands by the use of assets that are now being accumulated. As to capacity to produce, even in 1929, it is estimated, our productive resources were used to only 81 percent of their capacity, and in the years immediately following to less than 50 percent of their capacity. If the measure both for goods turned out and for prices be taken at the 1940 levels, a time neither abnormally depressed nor as yet inflated, gross national output of goods and services totaled almost 100 (97) billion dollars. The increase since that time has demonstrated an actual physical capacity to produce 50 percent more than this, still figured on 1940 prices, and at 1940 work hours (the shortest in history), employing all but a minimum of 2 million of the labor force.

Demands for Workers, and Buying Power.

To begin with, a considerable number of the workers who now are carrying on some branches of production will need to be retained for retooling of plants. Further, certain sharply curtailed service industries are badly in need of expansion.

Accumulated demand for consumers' goods, which is one measure of demands for workers, was estimated to total some 12 billion dollars at the end of 1943. Demand is expected for 1 million private homes, and there are estimated to be deferred maintenance costs of 3.5 billion dollars for public and private property. At the time of the 1940 census almost half the dwelling units in the United States were in need of major repairs or had no bath, or both these conditions. Of more than 7 million farm units reported, 6½ million had no bath, 6 million had no running water, and only 31 percent had electric current. Authorities state that to properly house the urban population alone 1,600,000 dwelling units should be built every year for at least 10 years after the war ends. Food needs also are tremendous. Paul V. McNutt estimates that 75 percent of all Americans need better diets, and Milo Perkins stated that in 1939 an estimated 20 million Americans were living on an average of 5 cents' worth of food per meal. A Nation-wide survey made in 1936 by the Bureau of Home Economics revealed that 45 million men, women, and children were inadequately nourished. At least 250,000 people could be employed at making clothes if every consumer could have even the amount of clothing purchased by the families that lived on an income of \$1,800 a year in 1939. This would mean a 10-percent increase in clothing production.

The problem arises of distributing this demand over a period of time such that production can begin and continue, without the growth of so great a peak demand (with consequent high prices) that a slump might follow, with resulting unemployment.

In many cases plants can begin at once to produce civilian goods. Less than 10 percent of total civilian manpower was estimated at a peak time to be in war-converted industries, which must reengineer plants and rebuild sales organization (automobiles, refrigerators, office equipment, and so forth). Another 10 percent are in industries such as aircraft and shipbuilding that undoubtedly will decline markedly from their war status. This leaves 80 percent of civilians still engaged either in producing essential civilian goods and services or in war production very similar to peacetime products.

If war lasts through 1944, accumulated savings available as estimated by the Department of Commerce would be 40 to 60 billion dollars. That this is conservative is indicated by statements in the spring of 1944 that savings-bank accounts at that time totaled 80 billion dollars, war-bond holdings 25 billion dollars, besides other reserves in insurance and pension funds. Of course it must be remembered that these savings partake of the nature of capital reserves for their owners and are not fully available for short-time expenditure.⁹

Post-War Problems Vary by Industry and Area.

Demobilization obviously will affect some industries and occupations, as well as some geographic areas, much more than others.

About 80 percent of the manufacturing and mining employment in this country is concentrated in 413 of the more than 3,000 counties, that also have 80 percent of the urban population. Some 70 or more major production areas have been greatly overexpanded by war industries, a number of them formerly of a chiefly rural character, and many of them affording but few occupational opportunities to offset withdrawal of war manufacturing.

MAJOR DECISIONS THAT WILL AFFECT WOMEN

An orderly transition to peacetime living will depend to a considerable extent on the methods of handling a number of major economic policies, some of which can be indicated though not fully discussed here. The decisions made on these will influence to a great extent women's work and women's opportunities in the post-war world, though the economic factors that have been discussed also will have important effects. The few important problems listed below are not entirely independent of each other and are not shown in any particular order as to importance.

Problem A. Certain goods that have not been made during the war will continue to be scarce though it now appears that many people who want them will have money to buy. Unless rationing be continued until these stocks of goods can be somewhat replenished, prices will go very high before plants can be reconditioned to new production. The available goods will be sold, money will be spent in high prices. By the time new goods can be made available, unless some rationing continues, people will have considerably satisfied their wants and also will have less money to buy. The new market thus will be slowed up, as will production and the chance for jobs.

⁹ See Pierson on underwriting consumer spending, *American Economic Review*, March 1944.

Problem B. The policies that are followed, as to time and method, in demobilizing the military forces and fitting them again into civilian life will have much influence on whether or not people can have jobs, or money to live on until jobs are available. (See p. 6 on World War I.)

Problem C. The Government has made extensive contracts with private operators to furnish necessary war supplies. These will not be needed if the war ends suddenly. The rapidity with which the Government can cancel these orders and pay for the goods actually completed will determine the quickness with which the plants can promise their workers jobs at making peacetime goods.

Problem D. The Government owns large stores of goods, food, clothing, and all sorts of supplies for the armed forces that will not be needed after the war. Disposal of these too rapidly and at too low a price could cause a great loss to the Government (i. e., the taxpayers). It also could supply such a considerable demand as to make a slow market for new goods for a long time to come, thus retarding development of jobs.

Problem E. The Government owns much machinery in private plants. A major automobile manufacturer estimated, for example, that before reconversion 57 acres of Government machinery would have to be removed from his property. The types of arrangements made to transfer this to plant owners, or to remove it quickly if not needed for peacetime production, will have much influence on the rapidity with which the plants can begin peacetime work and take on their labor forces.

Problem F. The Government also owns almost 1,600 plants. Such properties owned by the Government cost more than 14 billion dollars, in addition to much of the machinery in private plants that also is Federally owned. The operation of these, their lack of operation, or the method of their return to private ownership can have a great influence on jobs, wages, and other labor standards.

These are but a few of the many questions to be solved, which include also the extent to which cooperative relations can be maintained between business and Government; the tax policy and the extent to which it may foster or retard new production; the ease with which manufacturers can get funds to begin financing their peacetime products; the rapidity with which communities can begin public works and offer jobs to displaced workers during their period of transition; the method by which the Army sees to it that returning men actually are transported to their homes or preferred communities; rehabilitation of devastated areas; policing through a world agency to foster peace; and so on. Wise solutions of these myriad problems will affect jobs and standards of work and life.

The problems to be met after the war were studied by the National Resources Planning Board. A Conference on Post-war Readjustment was called, and suggestions were made as to the wise solution along many lines. These were summarized in a brief report on "Demobilization and Readjustment," available in libraries.

More recently, a definite effort has been made to prepare for solving the problems indicated under D, E, and F by the appointment through Executive order of a Surplus War Property Administration. The property over which this authority extends includes "any property, real or personal, including, but not limited to, plants, facilities, equipment, machines, accessories, parts, assemblies, products, commodities, materials, and supplies in the possession of, or controlled by, any Government agency, whether new or used, in use or in storage, which are in excess of the needs of such agency."

Part IV.—'PLANNING FOR WOMEN

Sound policies outlining women's post-war situation and opportunities are the subject of much thought among women themselves. They are being discussed at numerous public conferences and form the basis for active programs of national organizations of women. It is realized strongly that the economic situation as a whole will have the most profound effect on women's opportunities. Besides this, certain basic principles specifically applying to women have been thought out and expressed. Practical methods for putting these into effect, taking account of controlling economic factors, have not been fully developed, though some steps in this direction have been initiated.

The more outstanding facts and principles being stressed by women who are thinking through these problems are along the following lines:

Even before the war, women constituted a very considerable proportion (24 percent) of the labor force. For decades this had been an increasing proportion. A large part of the woman labor force has been responsible for the support of dependents. The extent of this is increased by war conditions. War casualties will contribute to the excess of female over male population, which already had developed in many areas in this country.

Many women who have entered employment for patriotic reasons or because their husbands were in service will wish to leave the labor force after the war. Many other women will be unable to retire from gainful work or will wish to continue to use the skills they have developed.

The skills developed by women in their war work are a national asset that should continue to find effective use.

Opportunity should be afforded to women for education, training, job placement, and advancement in their chosen lines of work.

Efforts to provide jobs for the post-war labor force should fully include women workers. Arbitrary dismissals of women should be forestalled by developing constructive measures to expand the economy and provide full employment for all who want it.

It is not possible here to quote from the many outstanding women who have given thought and expression to these post-war needs of women. A few excerpts will be given here from women and others in Government authority and from policies adopted by national organizations of women or stated individually by officials of such organizations.¹⁰

¹⁰ See also quotations collected in a mimeographed publication of the American Association of University Women, *Food for Thought and Discussion on Women in the Post-war World*. Compiled by Frances Valiant Speck, October 1943.

POLICY STATEMENTS BY GOVERNMENT AUTHORITIES ¹¹

Mary Anderson, Director of the Women's Bureau, U. S. Department of Labor:

After the war women will predominate in this and other countries. Thus, on any count, the peace plans—which must be formulated even during the throes of war—must give especial attention to the interests of women but in relation to the greatest good for all our people.

For decades in this country millions of women have had to earn a livelihood. Many have had to be the total or partial support of dependents. As a result of the war, women's wage-earning responsibilities will be greatly increased. A large number of women in all types of positions will have to continue to take the place of men—to take the place as breadwinners of men who fail to return or come back incapacitated from the battle fronts.

To rebuild the world after the war, to reconvert our own country to normal, will require a vast amount of work—enough to absorb all dislocated workers. There must be a farsighted employment program of readjustment for men and women and of fair play to both.—*April 1943.*

Women's Advisory Committee, War Manpower Commission:

Government and industry must not assume that all women can be treated as a reserve group during war only, nor should those who wish to stay in the labor market be accused of taking men's jobs. The right of the individual woman to work must be recognized and provided for, just as is the right of the individual man to work.—*May 1943.*

If the rights of women workers are to be protected, intelligent and comprehensive programs will have to be evolved and put into effect. The committee is of the opinion that national planning should be taking definite shape now to provide employment outlets for everyone who wants to work—both men and women—after the war.

The Committee is in full recognition of the fact that men in the armed forces will have their old jobs back when they return if they want them. This is written into the Selective Service Act. It is further recognized that some women will leave their jobs of their own accord and return to their homes as soon as possible.

But any easy assumption that a great number of women will return to their homes is to be seriously questioned. Almost 14,000,000 working women are not newcomers to the labor force. The number of women who want and need to work has increased enormously during the war. There will be an even higher proportion of unmarried women in our population. There will be hundreds of thousands of women who must accept the permanent function of breadwinner because of the loss of husbands in the

¹¹ See also statement of the Under Secretary of War, p. 91; and Address by Mary Anderson, Proceedings, American Economic Association, 1944.

war. And there are the women who have adjusted their family life and found a new, often hard-won economic status which they do not wish to lose.

Prospects for job security and other new job opportunities after the war are as important to these women as to men. Furthermore, no society can boast of democratic ideals if it utilizes its woman power in a crisis and neglects it in peace.

The American people, therefore, must demand consideration of the status of women in all post-war plans. This consideration is important to the war effort now, and it is socially desirable for the post-war period.—*December 1943.*

Conference on Post-War Readjustment of Civilian and Military Personnel, National Resources Planning Board:

. . . Women and men who have shared similar responsibilities during the period of the war as workers in war industries or as members of the armed forces should enjoy similar rights and privileges with respect to demobilization and readjustment.—*June 1943.*

U. S. Senate Special Committee Investigating the National Defense Program (Mr. Truman, Chairman):

Many of the women who have gone into our factories and done such splendid work during the war will want to continue working, and they are entitled to a chance to earn a good living at jobs that they have shown they can do.—*November 1943.*

**PROPOSALS BY INTERNATIONAL LABOR ORGANIZATION
AS TO EMPLOYMENT OF WOMEN**

The following extracts are from one of the reports prepared by the International Labor Conference to present background material on the questions on the Agenda for its regular spring session, to be held in Philadelphia in April 1944 (ch. IX of Report III, The Organization of Employment in the Transition from War to Peace). The Recommendations as to Women Workers, which are proposed for discussion at the conference, also are included here.

If full employment can be achieved, the solution of women's special problems will, of course, be greatly facilitated. But the employment shifts which are bound to accompany the transition from a wartime to a peacetime economy are likely to give rise to temporary difficulties in respect of women's employment, since woman power is still generally regarded as a reserve of labor which can be tapped or neglected at will.

During the present war, the reserves of woman power have been drawn upon very freely . . . Furthermore, women have been entrusted with the most varied types of work and functions, at nearly every level of skill and responsibility.

[During] the economic depression, . . . one school of thought was then in favor of eliminating women, especially married women, from the employment market as a remedy for unemployment. It need hardly be emphasized that such a remedy is inef-

fective; it merely shifts the incidence of unemployment and is, in fact, more difficult to apply than had been anticipated.

The last depression, indeed, clearly showed that unemployment increases the number of applicants for employment within the family circle. The remedy is, therefore, not to try unsuccessfully to bar married and other women from employment but to develop social security measures which will give women real freedom to choose between whole-time domesticity and a paid occupation, which they can do only if the pressure of economic necessity is relaxed.

The practical methods of applying the principle of equality of opportunity for employment must be worked out within each occupation.

PROPOSED ILO RECOMMENDATIONS AS TO WOMEN

Having regard to the ability which women have shown during the war in the skillful performance of the most varied jobs, and in accordance with the consistent policy of the International Labor Organization, it is suggested that the redistribution of women workers in the peacetime economy should be organized on the principle of complete equality of opportunity for men and women on the basis of their individual merit, skill, and experience.—*Paragraph 37.*

In order to place women on a basis of equality with men in the employment market and to prevent competition among the available workers, prejudicial for all alike, it is suggested that measures should be taken to encourage application of the principle of equal pay for equal work, a principle which the Organization has consistently supported from the outset.—*Paragraph 38 (1).*

As a means of facilitating the application of this principle, it is suggested that investigations should be conducted, in cooperation with employers' and workers' organizations, for the purpose of obtaining information on the quantity and quality of work performed by men and women in the same or comparable occupations and jobs, and thereby establishing standards of evaluation permitting of the comparison of job performance and the fixing of wages on that basis.—*Paragraph 38 (2).*

Finally, without prejudice to opportunities for the employment of women in other occupations, the employment of women should be facilitated by action to raise the relative status of industries and occupations in which large numbers of women have traditionally been employed and to improve conditions of work and methods of placement therein.—*Paragraph 39.*

STATEMENTS INDICATING POLICIES OF NATIONAL WOMEN'S ORGANIZATIONS

American Association of University Women:

The National Board of this organization voted in June 1943 to endorse the policy stated in May by the Women's Advisory Committee of the War Manpower Commission. (See quotation above.)

It was considered that in concrete terms this reaffirmed the following resolution passed at the 1941 biennial convention:

Women in a democracy should have opportunity to participate fully in the intellectual, social, economic, and political life of the Nation according to their ability as persons without restriction because of sex or marital status.

The Board recommended:

That we support efforts to secure qualified personnel on policy-making boards, staff, and conferences, with full recognition of the expertness of women as well as men, and that we cooperate where desirable with other organizations to secure the inclusion of competent women. (For later statements, see the quarterly *Journal* of this organization.)

National Board of the Young Women's Christian Association:

Mrs. Henry A. Ingraham, then president of the Board, stated:

We accept the challenge to align ourselves with like-minded organizations, with Government, education, labor, and the church, for many specific purposes and for the general over-all purpose of securing for women opportunities for greater leadership and fuller service to mankind.—*October 1943.*

Miss Juliet O. Bell of the Board says:

A new philosophy of work for men and women may be one of the fruits of the present conflict—that work is a way of life and not a matter of getting and keeping jobs . . . Only when all able persons in a society take their rightful part in co-operative enterprises can society enjoy full health and vigor.—*October 1943.*

(For later statements see *The Woman's Press*, published monthly.)

National Federation of Business and Professional Women's Clubs:

Dr. Minnie L. Maffett, president, in addressing this organization's national convention in July 1943, stated:

An organization like ours must see that opportunities for a woman to use her talents are never again closed. Moreover, every woman in a high position must be made to feel that she owes it to all women who are coming after her to hold the door open. In our clubs we must take our places with organizations that are concerned with post-war economic planning, to make certain that in that planning provision is made for jobs for both men and women. Broad expansion in industry and better systems of distribution must be developed if we are to be honest and fair to the old employees, the millions of new recruits, and the 10 million returning soldiers after the war is ended.

Dr. Maffett recommended further:

That nationally, in the States, and locally, we initiate and co-operate, when a need exists, with appropriate organizations applying themselves to economic and social problems involving winning the war and winning the peace; and

That the Federation demand the enforcement of the principle of equal pay for comparable work.

(For later statements, see *The Independent Woman*, published monthly.)

National Women's Trade Union League:

Rose Schneiderman, president, has made these statements:

We must give the impetus of our collective voice raised in support of post-war jobs for women as well as men, equal pay for equal work, and adequate social security.—*October 1943.*

Demobilization of millions of women when the war ends will indeed challenge us. But it is right that the youngest among them, the 16-year-olds who are doing war work now, should go back to school. It is right that some of the very old women who have been drawn back into industry be allowed to return home. And if women with young children can be supported without working, they should have that privilege.

There will be a tremendous chance for women in retail trades and service industries which have been drained. There will be opportunities in the many war plants which will be converted to peacetime purposes, some of them entirely new.

Many men now in the armed services have been trained to more complex jobs and will not be coming back to their old jobs, and women may fill their old positions. There will be much reshifting, but not a situation to warrant complete pessimism.—*November 1943.*

(For later statements see the monthly mimeographed publication, *Life and Labor*.)

In addition to the foregoing, statements far too numerous to quote have been made by outstanding women from all walks of life who have been thinking along these lines—educators, vocational advisers, labor-union officers, executives, editors and feature writers, radio commentators, personnel administrators, women in public life, and those in many other professions.

AUG 30 1944

LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,

WOMEN'S BUREAU,

Washington, May 24, 1944.

MADAM: I have the honor to transmit a report analyzing both broadly and in detail the widening field of responsibility on the part of the industrial nurse and the vital importance of her being informed as to working conditions, actual and desirable; occupational hazards and accident prevention; plant service and food facilities; the personal problems that lower women's efficiency on the job; and other developments of the war years.

It is being increasingly recognized by employers, industrial physicians, industrial nurses, and workers that the nurse has a great opportunity to help in the solution of such problems and in the education of workers in matters of health and safety. This report is directed particularly, therefore, to nurses in industrial plants; but it is hoped that the presentation of some of the factors involved in the employment of women will be of use also to those in such departments as personnel, safety, and training.

The report is the work of Jennie Mohr, of the Bureau's Research Division.

Respectfully submitted.

MARY ANDERSON, *Director.*

HON. FRANCES PERKINS,
Secretary of Labor.

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The Industrial Nurse and the Woman Worker

I. THE WOMEN COME TO THE NURSE

From the towns and from the farms, from homes and shops and offices, women are coming into war plants to make the machinery of war. They are building tanks and planes and ships and guns. Much of the work is strange to them, but there is no question about the effectiveness with which they are doing it. As men are being transferred to military service, women are filling the gaps in industry in increasing numbers. They are spreading into jobs that a few years ago no one would have expected them to fill. Some of these jobs are fairly light and obviously suited to women's physical abilities and experiences. Others are heavy, dirty, and sometimes dangerous. All of them, if war production schedules are to be maintained, require regular attendance and efficient performance.

At the same time, for the sake of the women themselves, their safety must be preserved and their health guarded. Thus the need for careful consideration of the well-being of women workers is twofold. It arises from the demands of war and from the need to protect the lives and the health of workers. These two needs are really one and the same; good performance cannot be given by sick or injured workers.

When women come into industry, new problems arise that were not there before. Some of these problems always arise among women workers, regardless of where they work. Others are peculiar to the job or the industry and, in cases of occupations unusual for women, are arising now for the first time. Here are a few of them:

1. Most of the women now coming into the plants are inexperienced, particularly inexperienced in the kind of work they are to do. Two factors make this a special problem: First, because most women have had not even casual experience with machines and tools and are unfamiliar with mechanical things and terminology, they are likely to feel greatly at a loss, at the outset, in dealing with such matters. Second, they find the factory environment strange and difficult to become adapted to. The size, noise, movement, confusion, often are overwhelming. Especially for the housewife coming into a factory for the first time, the importance of such things looms large. She has been used to working hard and steadily, but it has been independent work, at her own pace, according to her own plan, and in the security of her own home.

2. When women first came into war jobs they were carefully selected. Especially, age limits were set; often 18 to 35 years, or 20 to 40, was considered not only the most desirable but the only suitable age group. Gradually this idea was given up, partly because there were not

enough women of these ages, partly because it was discovered that a woman past 40 is able to hold her own on many jobs. Now in many places there are no age limits at all. This change not only opens opportunity to older women; it places more responsibility on management in the selection of women, responsibility to see that in employing older women they still preserve good health standards. At the other end of the age scale, the introduction of young girls into factories also brings new problems. These girls, many of whom are now undertaking their first job, have no experience to guide them in handling themselves and their work. They have little or no maturity of judgment that might help them to adjust to the environment; they have no knowledge of what is to be expected of them or what they may expect of others.

3. Many of the women are married, have homes and children. Frequently they have no relief from their home responsibilities when they start in on a factory job. Consequently, they are doing two jobs at once. On top of a full day's work in industry, they must run the home, prepare meals, care for children, do the shopping and the mending and the innumerable other household tasks. What does this double burden do to their efficiency on the job? How does it affect their health and their staying ability? To what extent should the plant nurse undertake to aid them in dealing with these questions?

4. An obvious problem is that of the physical capacities and requirements of women. Though of course there are wide differences among women, they have on the average a little over half the physical strength of men. This means that generally they cannot do, unaided, the heavy lifting, carrying, pushing, and pulling that some jobs require. Their structure is different—on the average their height is less than men's, their hands and feet are smaller, their muscles, especially of the feet and legs, are quicker to tire. Therefore, the suitability of equipment that ordinarily is used by men must be considered. Are tools too large to grasp or too heavy to wield?

5. It is sometimes as much of a problem to get the factory adjusted to the women as to get the women adjusted to the factory. There is scarcely a corner of "man's world" that is not being invaded by women. And naturally enough this is hard on the men. Consequently, they are likely often to resist the invasion—resist it by means of hostility and refusal to accept the women workers. Natural though such an attitude may be, it has of course no place in the present scheme of things; and the men—workers, supervisors, sometimes top management too—must be helped to understand that fact. In the meantime, the women are faced with this situation, and it is obvious that, on top of their general industrial inexperience, it adds another problem to be considered.

All these factors affect the production of the women workers. It would be the height of unwisdom to ignore them—especially when, with understanding and vision, they can be handled. In the course of this study other questions that affect similarly the success of new women workers will be mentioned. In general, it may be asked at this point: What is to be done about these problems?

Particularly, the question is: What can be done by an industrial nurse who is concerned immediately with the health of the workers in the plant? How can she best help to assure the maximum effi-

ciency of these new women workers? Most obvious is her place in the medical service of the plant, her special concern for the injuries and illnesses that arise in the course of the day's work. But whatever the specific task, the nurse is in a position to give the women guidance. This does not mean assuming responsibility for their personal problems, or for their relationships within the plant, or for their difficulties on the job. But because of the nurse's role in the organization, women turn to her for help. It may be well to examine in some detail the particular places in which her help is asked, and how such requests fit in with her job in the plant.

Industrial nurses are different. The very fact that they function in the plant dispensary or hospital or first-aid station rather than in a hospital or private home is a major cause of the difference. This setting, and the immediacy of the sources of injury or illness, cannot be ignored. Industrial nurses are on the spot, in the plant. Right before their eyes are the sources of trouble; they are in a position to see what these sources are.

Again, the health problems that come to the nurse often are directly related to many factors, in both work and home. These factors, which will be discussed in some detail later, may have to do with the physical demands of the job or with the working environment; with the routine of factory regulations; or with health or other problems within the home. They are the matters on which women go to the nurse for guidance, and they affect very directly the performance of the women on the job. The nurse's function, then, is something in addition to that of a hospital nurse, because she is confronted with nonmedical problems that directly affect the health of the workers and their productivity.

Among employers, industrial physicians, and industrial nurses, it is becoming widely recognized that the nurses have this widening field of work. Industrial medical practice is developing increasingly a preventive program; it is designed to keep people well, not only to cure them after they become ill. Consequently, stress is being put on the part that the nurse can play in helping with this prevention program. At the end of this pamphlet is a list of references to articles by industrial physicians and nurses that clearly state this purpose.

The specific points at which guidance is needed, and can be given by the nurse, will be discussed in the pages following. Here are a few examples:

Margaret C. works on the graveyard shift. She is married, but has no children. She keeps house, which is not an excessive burden on her because it is in a small apartment and her mother lives near enough to come to the rescue in case of emergency. But Margaret C. is subject to severe headaches. She has had them for years and since she came to the plant they have increased in frequency and intensity. The doctor told her that she is not getting enough rest, not enough sleep, and that she is not eating the right food. But how can she? She has been on the job for 3 months but still has not learned to sleep well in the noise of the day; and she cannot get into proper eating habits in the topsy-turvy schedule of the night shift. She has been staying away from work—2 days this week, 1 last week, 3 days the week before.

Margaret goes to the medical department for some anacin, hoping that it will make her feel better able to stay the night through. She tells the nurse about the headaches, the irregular, sketchy, pick-up meals, the strain of working nights and trying fruitlessly to sleep days. "What shall I do?" she asks.

Frances R. operates a couple of grinders in the tool-grinding department. She sharpens drills: Small drills, sometimes no larger than an embroidery needle, on the rotary grinder; larger ones, perhaps two inches or more in diameter, on the rocker grinder. Frances stands at the job all day; and even though she is provided with a wooden platform to keep her feet off the cold cement floor, she gets pretty tired.

Frances finds her way to the nurse's office, too. "I've been menstruating twice as long as usual since I've been on this job," she says. "I've always suffered a good deal of pain, but now it seems worse than ever. I think standing all day has something to do with it. And besides, those tote boxes are pretty heavy when I have to return the drills and fetch new ones. I know I've been told not to lift too much; but on a day like this almost anything is too much. What can I do about it?"

Ruth M. is 35. She has been working in the plant for about 6 months, and has talked with the nurse—once when she had a slightly cut finger and once for a few minutes in the women's rest room. The nurse remembers thinking what a capable, sensible, attractive woman she seemed.

Now she goes in with a pass from her foreman and asks the nurse to countersign it. She is ill, and wants to go home. "No, nothing particularly wrong; I've just got a terrible headache, and I can't stay." She looks very distressed, and the nurse wonders if it is just a headache. And before long Ruth begins to talk. She really has a headache, but that is the effect, not the cause. "My mother simply can't be left alone in the house any more—she is too sick; I am always terribly afraid something will happen to her while I'm at work. She needs a doctor's care, and maybe she should be in a hospital—I just don't know. Most nights I am up taking care of her, and I'm all worn out and don't know what's best to do."

Mary C. goes storming into the dispensary. "Can you give me something for a cold—I'm getting a nasty one, the third I've had in the 2 months I've been here. I tell you, that room is so drafty and cold I don't see how anyone keeps well in it. And when I put on my sweater the safety inspector comes along and tells me it's dangerous to wear it around my machine. So I either freeze or get caught in the press. I don't know which would be worse."

Not only the health of the women but their performance in the plant depends in some measure on what the nurse does about these women who go to her for help. She can get at the reasons why they are absent, or quit their jobs. She, perhaps better than anyone else, can discover from them conditions within the plant that hamper their production, conditions that might well go unrecognized or ignored by the supervisors who are concerned with getting out the product of the plant. She can help these supervisors to increase that output by helping to remove some of the things that slow it up. This bulletin is the story of such opportunities in a nurse's job, and some of the ways in which she may take advantage of them.

II. GETTING TIRED OUT

Women come into the dispensary and complain of being "too tired to work." Or they show signs of "wearing out," and sometimes quit their jobs because they can no longer stand the strain. Still other women keep going but have to make more and more of an effort to do so; or their production slows down; or the number of their accidents or illnesses increases. These changes may be signs of fatigue. To help the women to remain well and be effective workers, the nurse must know what is the basis of their inability to carry on their work. The following paragraphs point out some of the causes she may discover. Some of them she can deal with directly; others can be removed only by winning the understanding and cooperation of supervisors, management, or other agencies. In all cases her first need is *to know why*.

A great many studies have been made of the fatigue of industrial workers. From them one significant fact has arisen clearly. This is, that there is no simple element, fatigue, that can be recognized and isolated and measured. Rather, fatigue is a word that is used to describe a whole group of conditions, both within the worker and in the environment. Some authorities hesitate to use the word at all, because it means too many things. But often it can be applied usefully to the situation in which a worker's ability to stay steadily on the job, and do a full day's work, becomes gradually lessened. The concern here is with some of the conditions in the environment and the job that might help to bring on this situation.

Dr. Alice Hamilton, an outstanding authority in the field of industrial medicine and formerly of the Harvard Medical School, puts it this way (1):¹

For a long time industrial fatigue was considered a rather simple problem, something for physiologists to determine by chemical or mechanical tests that could be applied to workers in the field just as well as to laboratory subjects, but the more the problem has been studied, the more complicated it has been found to be. Fatigue is influenced not only by hours of work but by other environmental factors, such as long or short periods of uninterrupted work; by heat, cold, humidity; by lighting; by posture; by the worker's skill or lack of skill; and by the worker's mental attitude toward his job and his pay, his fellow workers, and his supervisors.

Others have shown that still more factors are involved than those mentioned by Dr. Hamilton. These various causes act on the worker's mind as well as his body. Dr. R. R. Sayers, director of the Bureau of Mines, United States Department of the Interior, points out (2) that—

Environmental conditions and relations with management and fellow workers are more important factors in fatigue than physical activity except in the "heavy" industries that require hard physical labor.

It is neither necessary nor possible to explore here all the factors that create fatigue. But some of the more obvious reasons why women find themselves tired out may be indicated.

¹ References in parentheses throughout this report are to "Sources Referred to in Text," p. 44.

Long hours of work.

It is recognized generally that excessive hours of work, required over long periods of time, are a health hazard. It is not known how long a workday is the best for women, producing the most work of best quality with least exhaustion. But many studies that have been made indicate that fatigue arising from a long workday may be a serious obstacle to sustained and efficient work.

Dr. Isador Lubin, United States Commissioner of Labor Statistics, says (3) :

It can be proven by medical evidence that the amount of fatigue increases at a more than proportional rate as you go beyond a certain number of hours a day * * *. There is evidence to show that the eighth, the ninth, and the tenth hours do not result, in many industries, in as much output per man as any of the first 6 or 7 hours.

There are other factors besides production that appear to be related to the length of the working day or working week. Among them are the amount of spoilage, lost time, rate of accidents, and turn-over. Of these, the factors that would most easily come to the nurse's attention are lost time—especially that due to illness—and the rate of accidents. One of the studies by Dr. H. M. Vernon, eminent British authority (4), indicates that increasing the hours of work produces a greater increase of accidents among women than among men. In a group of women workers in a munitions plant he found that the number of cuts suffered in a 12-hour day was nearly $2\frac{3}{4}$ times that in a 10-hour day, whereas among men the number was increased by only 14 percent. This cannot be taken as a certain measure of fatigue, however, as other elements may be involved. But if the nurse finds that any of these factors, such as absenteeism, accidents, or turn-over, are serious among the women in the plant, she should consider whether they may be due to long hours of work. Her records of the women coming in for attention will furnish useful evidence in showing the effects of a fatigue that may be caused by too long a working day or week. Standards recommended by government agencies (3) include an 8-hour day, 6-day week, adequate meal period, and vacations.

Posture.

That poor posture plays an important part in the development of fatigue has been shown by many who have studied the question (5). Correct posture depends on two things: Sitting well, and having the right kind of chair to sit on. Of course it is possible to sit correctly on anything—a box or boards, for example. But it takes a good deal more effort to do so than if one has a properly designed chair.

Dr. J. R. Garner, an authority on posture, describes (6) the close relation between posture and fatigue. He points out that a slouched posture impedes the action of the heart, the circulation of the blood, and the processes of elimination. It puts pressure on the abdominal organs and may help to bring about displacement of the generative organs.

The encouragement of proper seating, both by explaining to the women the need for good posture and by convincing management of the need for good seats, is one important way in which the plant nurse can contribute to the relief of fatigue of the women workers. It has been shown that continuous sitting, as well as continuous standing, is

tiring. Many jobs can be done in either position, but often it is found that the women in such jobs are always standing or always sitting. Alternation should be encouraged wherever it is possible.

In a study of the fatigue of 325 workers Dr. Vernon (7) says:

* * * Of the 325 workers * * * half complained of bodily fatigue. A quarter of the complainants said that they "felt tired all over," whilst a third of them felt tired in the back, neck, and shoulders. This seemed to be due to their working continuously in a sitting posture, for the operatives who had to stand whilst working frequently complained of fatigue in the legs. The fatigue felt by the two groups of workers would have been considerably reduced if they had sat and stood alternately at their work, for 86 percent of them stated that they preferred such an arrangement to a fixed posture.

Home responsibilities.

It is an oft-repeated story that women with homes and children to care for face a double responsibility when they take an outside job in addition. Indeed, a large part of the difficulty that women have in keeping going, day after day, may be explained by the fact that their hours away from work are filled with duties that allow insufficient time for recreation, rest, and sleep. This is true not only of married women with children, but of others who also have home duties and perhaps have dependents as well.

In most communities there are various agencies established to provide services for residents of the community. A nurse can inform herself as to what these agencies are in her own region and help the harassed worker to get aid from them.

Monotony.

One of the features of the large-scale employment of women in industry today is that many of their jobs are of an extremely simple and repetitive nature. In fact, to be able to use these inexperienced workers quickly it has been necessary to break down many of the more skilled jobs into very simple parts, and to train the women to do only one or a few of these parts.

The extent to which the monotony of such work tires the women depends largely on the individual; one man's meat is another man's poison, and the job that seems completely satisfactory to one woman may build up in another a restlessness or a tension that results in extreme fatigue. One writer points out (8) that boredom is experienced less when a job is fully automatic than when it is only semi-automatic. If it is such as to demand practically no concentration or attention, the worker can do it and keep her mind (and perhaps her conversation) on other things. But when it takes enough concentration to prevent this mental relaxation, and at the same time not enough to catch and hold the interest, then it is truly monotonous. The same situation is described by Dr. Hamilton (9):

Unskilled work is on the whole more fatiguing than skilled, because it does not occupy the worker's mind. A man who has to think about his work is less susceptible to fatigue. With the introduction of the machine there often comes a loss of initiative on the part of the employee, who is, it is true, expected to work faster and to control more and more complicated machinery but whose work, even to individual motions, is planned in detail for him. His interest in it is apt to be lost very soon in boredom. On the other hand, if work is so completely automatic as to require almost no attention, it may not be boring because the worker can talk or day-dream as he pleases. It is in semiautomatic work, of a repetitive kind, that fatigue from boredom is most common.

The answer to the question of fatigue caused by monotony is frequently found to be in short rest periods. A number of plants introducing rest periods found that they were helpful not only to those workers who needed the time because of the heavy work they were doing, but also to those who needed a change from light, repetitive work. Dr. Hamilton remarks (10) that—

The effect of too long hours on repetitive work is shown most clearly in the mental attitude of the worker, which is one of bitter, pessimistic pre-occupation, and by irregular attention to the work. This attitude was found to disappear in the majority of cases by the simple expedient of breaking the monotony and lessening fatigue by rest periods.

Physical environment.

The physical conditions of work play a large part in preserving or diminishing a worker's staying-power on the job. Some of the important factors are these:

Lighting.—Thirty-nine percent of all workers of 30 years of age are handicapped visually (11). This means that not only the older worker, whose vision may fail with his years, needs the protection of good lighting, but others as well. The American Standards Association Recommended Practices bulletin points out that even those with perfect vision "find, under good lighting, a noticeable improvement in eye comfort which results in reduced fatigue." (12)

The advantages of good lighting listed by Allen D. Brandt and Harry E. Seifert (13) include, among others: Greater ease of seeing, especially among older employees, thus making them more efficient; less eyestrain; and improved morale.

Noise.—It is well known that a noisy environment is conducive to fatigue. A study of "Noise and Its Effect on Human Beings" (14) indicates that there is also danger of actually impairing the hearing, and that the efficiency of workers may be diminished in a noisy environment. The Bureau of Women in Industry of the New York Department of Labor has studied the effects of noise on the hearing of industrial workers (15), and recommends that tests of hearing and periodic examinations be made where workers are exposed to excessive noise.

Dr. Vernon points out (16) that individuals vary greatly in the way they react to excessive noise, and that some attempt should be made to discover which workers are particularly susceptible and likely to develop nervous symptoms when so exposed.

Brandt and Seifert (17) list four ways of reducing or eliminating the hazards of noise: (1) Elimination of noise at its source, (2) isolation of noisy operations, (3) reduction of noise by sound insulation, and (4) the use of personal protective devices against noise.

An awareness of these possibilities, and knowledge of the apparent effects of noise on individual workers, will help the nurse to encourage the proper steps to be taken against this hazard.

Ventilation and heating.—The importance of uncontaminated air and suitable temperatures in which to work is obvious. Not only is it necessary to protect the workers exposed to special hazards, such as dusts, fumes, gases, and vapors, or to extremes of cold and heat; steady efficiency and continued good health require for all workers surroundings that maintain recognized standards of ventilation and heating. Discovering what these standards are, and seeing that they

exist in the plant, are the responsibilities of both safety and medical departments. But when the women go to see the nurse because of a cold, or a sore throat, or because they find they have to spend time and energy fighting an uncomfortable environment, she can do a lot by discovering the extent to which unsuitable air or unhealthy temperature contributes to their special difficulties.

With respect to all the factors that make up the physical environment of the worker, the nurse can exercise a similar watchful control. She can call to the attention of the responsible officials the conditions she has reason to believe are causing discomfort or illness, and urge that they be remedied.

Night work.

The conviction is general that night work is undesirable for women. However, in view of the widespread use of three 8-hour shifts during the war, and the not uncommon system of shift rotation, it is not practicable to set up a standard that invariably excludes women from night work. What can be done is to keep an eye open for the evidences of fatigue or mental or physical disturbances appearing as a result of night work.

It should be remembered, when shifts are rotated, that sufficient time must be allowed on each shift to permit the women to make adjustment to it. Rotation in periods of less than one month are for this reason too frequent. Two or three months probably should be the minimum length of time on each shift.

The disadvantages of both shift rotation and continuous night work are discussed by Dr. Beatrice Mintz in the New York State Industrial Bulletin (18), in which the "evidence offered by physiologists on the difficulty of changing sleeping and eating habits, making shift rotation a hazard to health and a factor in reduced output," is balanced against "the well-known observations of increased fatigue on night work and the social isolation experienced by the night workers themselves."

It is especially important to keep in mind the fact that the women who are carrying on household duties are more subject to fatigue as a result of night work than are men or women without such duties; they are likely to run the household during the day when they should be sleeping. Consequently it is important for the nurse to know the conditions faced by the women on night shifts, to determine on an individual basis their ability to do night work, and to inform the supervisor assigning shifts about the women who, for such reasons, should be kept off night work. The health and efficiency of the individual, as well as such factors as equal distribution of night work, seniority, and the like, must be considered in determining a valid basis for working at night.

Personality factors in fatigue.

Pushing a button, manipulating a gage, winding wire—whatever the process on which a woman is engaged—is only a part of "the job." She is one of a group, often a very large and miscellaneous group. She spends 8 hours a day not only doing work but doing it with or among other people. And her relationship with these other people has a good deal to do with how tired she gets on the

job. The scientific study of fatigue made at a Western Electric Co. plant (19) gives much evidence showing that such factors may have as much or more to do with creating fatigue as the actual physical strain, or even the monotony, of the work itself.

A well-known British industrial physician, Howard E. Collier, has pointed out (20) that fatigue may develop when a good deal of energy must be expended to counteract the effects of the environment. He adds:

It is for this reason that a cold shop, a nagging foreman or unhappy group relations in a workshop are found to be fatiguing by the worker.

In protecting the worker against fatigue, it is important to know the psychological factors that produce fatigue. Collier points out that—

* * * it is just "conditions of work" that lessen *emotional* fatigue that are of special importance in preventing industrial fatigue. Lack of sleep or insufficient rest are powerful causes of fatigue because they prevent or delay the restoration of depleted reserves of emotional energy. Moreover, it is recognized that * * * a feeling of insecurity is more fatiguing than indifferent ventilation * * *.

In many cases help for the new woman worker in adjusting to her job must be continued throughout her work experience. The need for this arises largely from two facts. One is that her attitudes—toward supervision, training, discipline, and regularity of work habits—do not always fit in easily with the factory environment, and she must learn to make them do so; the second is that she is likely to carry with her to work the worries and problems that face her outside. It is easy to see that the added strain of these factors contributes in no small part to her fatigue. Therefore it is important to learn the extent to which the women coming into factory work are having to deal with such problems, and how much they affect their ability to work steadily and efficiently.

Whatever the causes of fatigue, the extent to which it occurs in a plant is measured by what happens to the workers. This practical test is the nurse's best means of discovering when factors, personal or environmental, are threatening the well-being and efficiency of the women in the plant. If she watches for the first signs of fatigue, the nurse can eliminate or diminish its causes before they lead to illness, absenteeism, and separations.

III. EVERYDAY GOOD HEALTH HABITS

The work of a nurse in a plant may be confined within the 8 hours of a working day and the gates of the plant property. But actually what she does finds its way into the lives and homes of the workers and their families.

She can help workers to guard against many of the health hazards that threaten to impair their usefulness on the job as well as their security outside. To the worker, the foresight of this nurse is of enormous value. It protects the worker's ability to stay on the job, to produce, and to maintain economic security. It means steady performance and steady wages; less to pay out for curing ills, because there are fewer ills to cure; freedom from the psychological and physical drag of ill health.

The benefit to the employer of such aid on the part of the nurse is equally obvious. It means a healthier and steadier working force; it means less absenteeism and turn-over, smoother flow of work, better production.

That this responsibility of the industrial medical department is commonly recognized is reflected in the words of Dr. C. O. Sappington (21), widely known industrial-hygiene authority:

It has been repeatedly stated that the progress of the safety movement was greatly accelerated by "selling" every employee the idea that the safe way is the best way. This has its analogy in "selling health," and it is a fundamental principle that the employee must be convinced that good health or at least a fair degree of it is a basic principle upon which continuous earning capacity is founded. * * * the employer wants to continue his production as near the peak as possible; * * * the employee wants to continue to earn his wages without interruption. At the convergence of these two desires stands the field of industrial health through which these desires may be accomplished.

Dr. Sappington goes on to explain why it is important for the worker to acquire health information easily—which should mean, in large measure, to get it at her place of work. The industrial nurse in the plant is in a strategic position to give it. The worker who goes to the first-aid station or dispensary is, as one writer puts it, psychologically ready to receive instruction. The nurse can take advantage of the immediate concern—a cut finger or a skin eruption, for example—to direct the talk to general health care.

It is worth while to look at Dr. Sappington's reasons why it is important to give the workers health education (21):

It is impossible to entirely separate the personal health of the employee from the purely industrial phases of health. As a matter of fact, personal health is indeed a part of industrial health work. It is further evident that no matter what provisions are made for the protection of the health of the employee within his working hours, any individual can upset his program of protection within industry by what he does outside of his working hours. It therefore becomes necessary to provide some way by which the employee may be informed concerning his personal health.

It is surely fruitless and a waste of money and time to provide expensive equipment and extensive health service staff, unless the cooperation of employees can be secured in availing themselves of the opportunity of this service. This involves the continuous use of carefully gathered and widely disseminated health information.

Where health service has been inaugurated, it is necessary that a constant program of encouragement to make use of the facilities of the health service be promoted among the employees. This calls for constant reminders regarding the importance of health and the principles of keeping well, and the fundamentals of health training.

Good health certainly is of equal importance to men and to women. But in many of the practices that preserve and increase health, the attitude and the activity of a woman may be of more consequence. She is likely to be the one primarily responsible for running the home, preparing meals, looking out for the well-being of her family in terms of practical, everyday duties. She is in a position to apply at home, as well as on the job, the principles of good health which the nurse in the plant is able to give her.

These principles, if they are to be useful, must not be elaborate or difficult to follow out. The way in which they are presented should be, as one authority has said, "simple, direct, practical, and brief" (22). It must be in language easily understood, and must not involve more than a working woman with a family to care for can be expected to do.

Good health rests to a large extent on good everyday habits. Most people are likely not to bother about such things until something goes wrong. The idea of preventive health measures is not firmly rooted in the average person's mind. It is part of the nurse's job to make that idea become so constantly present in the minds of the women in the plant that they not only will get well but will stay well.

Ways and means for conveying this necessary health information to the workers, and for getting them to realize its importance to them, will depend on the plant's attitude toward health education, and will vary with the size of the force and the amount of work to be done. In some plants nurses remain constantly on duty in the dispensary; and as the women come in to have ills and injuries taken care of, or to ask advice or talk over some special problem, the nurse can take the occasion to interest them in questions of health. In other plants, one of the nurse's duties is to visit the places where the women are at work, or their rest or lunch rooms, to keep an eye on the conditions under which the work is done and the cleanliness and efficiency of the service facilities. Such occasions offer the nurse a chance to know the women, even those who do not come to the dispensary, and to arouse their interest.

Again, a plant may have an educational program, which begins with the introduction of new workers into the plant and continues after they are on the job. Such programs, which may stress special problems for women, must be the result of cooperation among various departments, such as safety, medical, cafeteria, personnel, industrial relations. (See pt. V.)

A few major points on which "selling health" to the women can be focused are these: Nutrition, personal hygiene, health in the home, and mental hygiene.

We are what we eat.

From the cradle to the grave, a person is to a large extent formed by the food he eats. Dr. H. M. Vernon puts it strongly when he says (23):

We have good reason to think that of all the environmental influences reacting upon the child before and after birth, upon the school child, the adolescent, and the adult, nutrition plays the largest part. It controls growth and physique, it largely determines physical and mental health, and the capacity for avoiding and overcoming disease.

That most of us have not been properly respectful of this power of food is recognized by the many health authorities who have become increasingly concerned with the health protection of workers, in normal times and especially now with the increased pressures that war has brought. For example, a report of the National Research Council (24) shows that among employed workers' families in various parts of the country, only 26 percent were classed as having good diets; 45 percent had fair and 26 percent had poor diets. The standards used in this study were lower than those of the Food and Nutrition Board of the National Research Council. If the latter had been used, the results would have been even less favorable.

As far as women themselves are concerned, it is recognized that the diets of women workers generally are poorer than those of men workers. It has been pointed out that this situation is of increasing significance as greater numbers of women go into industrial work. One manager of a chemical plant in England found that his women employees had much higher incidence of gastric complaints than the men but that this sex difference disappeared after the diets of the women were improved (25). Dr. Frank G. Boudreau, chairman of Food and Nutrition Board and Committee on Nutrition in Industry, National Research Council, points out (26) that there are three ways in which food deficiency can be dealt with: The first is education—workers cannot improve their health through proper eating unless they know what to eat; second, supplementing inadequate diets, a practice carried on in a number of plants; third, enriching staple foods so that one can get from them some added essential nutrition.

Of these three ways, two are of immediate concern to an industrial nurse. First, through her personal and constant contact with the men and women, she can help in teaching them what they should know about food; and second, by cooperation with those responsible for food facilities of the plant she can see that necessary kinds of food are available to the workers.

Nutrition education.—As the National Research Council report points out (27), the most pressing need in the campaign to safeguard nutrition and promote health and efficiency is greater knowledge about food requirements on the part of every person. To aid in giving this knowledge, Government agencies, research foundations, and private concerns have done a great deal within the past few years to explore the nutritional needs of workers and to publish material that can be used in the fine art of persuasion.

The Civilian Food Requirements Branch of the Office of Distribution, War Food Administration, has developed material for health education programs for workers as well as programs for plant techniques in supplying food. This organization also has a field service,

which helps plants to establish food services and to secure food supplies, equipment, and personnel. Regional headquarters of the Office of Distribution from which such help can be obtained are these:

Northeast Region: 150 Broadway, New York 7, N. Y.

Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.

Southern Region: Marietta and Forsyth Streets, Atlanta 3, Ga.

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia.

Midwest Region: 5 South Wabash Avenue, Chicago 3, Ill.

Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

Southwest Region: 425 Wilson Building, Dallas 1, Tex.

Arkansas, Colorado, Kansas, Louisiana, New Mexico, Oklahoma, Texas.

Western Region: 821 Market Street, San Francisco 3, Calif.

Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming, Territory of Hawaii.

Pamphlets, posters, and leaflets can be secured on request from the Office of Distribution, War Food Administration, and other agencies and can be introduced into the plant program by the nurse. At the end of this bulletin is a list of such material, together with the names of the organizations from which it may be had.

How much can the plant nurse do to help the women learn to prepare adequate meals, and, what is more, to persuade them to eat them? How much can she do to awaken the interest of all the workers in better health through better eating?

Pamphlets, leaflets, and fliers should be made easily available to the women, to be taken home. They should give suggestions about meals, information about the kinds of food that are needed by the body, ways of preparing the food, and what constitutes a balanced diet. The extent to which the nurse should or can be responsible for seeing that these materials are distributed to the women will depend, again, on the kind of educational program the plant has. But it is important for her to urge their distribution and their use.

In talking to the women, whether individually or in groups, some primary facts about food can be given them. For instance, the nurse might explain:

—A good guide to follow in order to supply the body regularly with certain needed foods is the use of the "Basic 7" food groups. The Civilian Food Requirements Branch of the Office of Distribution, War Food Administration, lists these basic foods as follows, and suggests that foods from each group be included in the diet each day:

1. Green and yellow vegetables, raw, cooked, frozen, or canned.
2. Oranges, tomatoes, grapefruit, or raw cabbage or salad greens.
3. Potatoes and other vegetables and fruits.
4. Milk and milk products or cheese.
5. Meat, poultry, fish, or eggs, or dried beans, peas, nuts, or peanut butter.
6. Bread, flour, and cereals—natural, whole-grain, enriched, or restored.
7. Butter and fortified margarine.

—The right food can be ruined by the wrong preparation. The ways in which food should be prepared in order to preserve its value are not harder, and frequently are easier and quicker, than other ways. Easy guides to the busy woman worker are available and can be distributed.

—The woman who keeps an eye out for the foods that are in season, abundant, and on special sale can often plan a more nutritious and

less expensive meal than if she stuck to traditional menus without regard to limitations of supply.

—Above all, it is important to eat regularly and in sufficient amounts. All nurses who have worked in plants for any length of time know how generally women neglect or hurry their meals. Especially among those working on night shifts, there is a great tendency to be sketchy about eating. Adjustment to a regular way of living on the abnormal schedule of a graveyard shift is not always easy. Many women, fitting in household duties during the daytime, fail to have regularity in hours either of sleep or of meals. The necessity for regularizing their program cannot be too strongly stressed, since the failure to do this is the quickest and most likely way of failing to get the needed supply of the right kinds of food.

Eating facilities in the plant.—When the eating facilities of the plant come under the immediate supervision of the medical department, as they sometimes do, the nurse can keep an eye on them, with respect to both the kinds of food they offer and the cleanliness of the kitchen and the service. In any case she can urge the management of the cafeteria to offer the kinds of food the workers most need. At the same time she can point out to the workers themselves how important it is to make a proper selection of items as they go down the cafeteria counter. Details of the various problems of plant feeding should, of course, be in the hands of a trained nutritionist. When the size or organization of the plant does not permit the employment of a nutritionist, War Food Administration Office of Distribution industrial-feeding specialists should be called on to help with the problem. The nurse can encourage this practice by showing management its large part in protecting the efficiency and health of the workers.

There are a few points particularly relevant to the task of providing adequate food facilities. Among them are the following:

—There is some evidence to show that the worker (especially one doing heavy manual labor) often gets the lion's share of the family food supply. Therefore, if a good part of this need can be met in the plant cafeteria, there is likely to be a real improvement in the supply remaining for the rest of the family (28).

—That the work in the plant definitely improves when proper eating facilities are provided is attested by many employers. Here are a few of their statements (29):

Production increased 10 percent due to improvement in morale in first two weeks after food service was set up according to recommendations of the Government's Nutrition in Industry Division.—Hugh Comer, executive vice-president, Avondale Mills, Sylacauga, Ala.

Absenteeism was cut 19 percent in first four months following installation of our Nutrition in Industry Program, which includes serving of Victory Lunch Specials providing balanced meals supplying more than one-third of the daily food needs.—Serval, Inc., Evansville, Ind.

An adequate nutrition and feeding program is an important contribution to the health and safety program for the employees.—Craig Cochrane, manager, Industrial Relations Department, Eastman Kodak Co., Rochester, N. Y.

We are meeting the need for changing food habits necessary under war-time rationing by serving more raw vegetable salads, more fresh vegetables and fruit, and milk, and weekly Meat Conservation Lunches in our 7 cafeterias and 35 mobile units which provide meals that follow Government recommendations.—John C. Becker, cafeteria manager, Curtiss Wright Plant, Paterson, N. J.

—The use of supplementary “snacks” between meals is believed to decrease fatigue, bolster morale, and increase production. An experiment (30) made on a group of women operators in a plant manufacturing rubber footwear showed an increase of about 10 percent in their production when the women changed from three to five meals a day. The amount of food eaten was not increased, but the intervals between meals were shortened. It is important that when such between-meal refreshments are made available they should be such as to have positive nutritional value—milk, citrus-fruit juices, fruits, tomato juice, sandwiches, and the like.

Haggard and Greenberg, who made this study, suggest the possibility of between-meals use of fruit or tomato juice (31). They point out that such juices contain vitamins and minerals, are readily digestible, and give prompt and definite increase in concentration of sugar in the blood. At the same time they are easy to handle in the factory, require no preparation, can be quickly consumed, and appeal to a wide range of tastes.

The use of sugar as a source of energy for industrial workers should not be encouraged, but rather the use of foods which have more essential food factors and a more prolonged effect (32).

—The lunch period should be sufficient to allow time for going to and from the cafeteria, washing the hands, eating without gulping, and to leave a few minutes for relaxation. A minimum of 30 minutes is necessary in spite of the fact that many plants actually have only 15 or 20 minutes for lunch. The nurse would do well to discourage the workers from eating while they are working or at their workplaces, and to encourage the management to supply suitable places and enough time for eating lunch.

That management itself is greatly concerned about this business of getting proper food for its workers is indicated in the pamphlet published by the National Association of Manufacturers (33), which describes the responsibility of management. According to this, leadership may be taken if management will—

1. Acquaint itself with the problem in its own plant.
2. Inform itself about the principles basic to proper diet.
3. Take five lines of attack:
 - a. Educate the worker.
 - b. Educate his family.
 - c. Provide nutritious food in the plant.
 - d. Cooperate with local restaurant owners to provide nutritious foods under sanitary conditions.
 - e. Make nutritious foods available at low cost.

Personal hygiene.

Cleanliness.—To get clean and keep clean is no small achievement in many of today's industrial jobs. But personal cleanliness is one of the largest factors in dealing with some of the ills to which workers fall heir. For instance, the complete removal of irritating solvents from the hands is the main guard against dermatitis on certain processes. And scrupulous cleaning is an absolute must in the protection of radium dial painters and others working with radium. Many years ago, when industrial poisons and similar dangers were first making themselves apparent in growing American industries, there was a tendency on the part of some employers to disguise them for fear the workers would be reluctant to stay on the job or the plant would acquire

a bad reputation. Now industry makes a point of telling workers what hazards they may encounter on the job and how to protect themselves.

Here, of course, lies an important part of the nurse's job. Among the women new to industry, especially, the nurse is likely to find many who require particularly constant and firm guidance in the matter of protecting their persons against exposures to solvents, dust particles, fumes, and other sources of industrial disease. They may need to have stressed to them the part that careful and regular washing plays in protecting their health. Here is a considerable job of education to be done, and no one is in a better position to do it than the industrial nurse. However, there is no point in urging personal cleanliness unless the worker has a chance to practice it. The question of adequate washing facilities in the plant will be discussed in the next part of the report. (See p. 23.)

One thing that should be made clear to the workers is the possibility of carrying into their homes the dangers they encounter on the job. Dust or solvents on the clothes may contaminate the home. A woman who leaves a scaling gun or a filing bench to go home and cook dinner for her husband and children should make very sure that she leaves the dust and the metal behind her, too.

Care of the feet.—The "foot problem" is more serious for women than for men. Standing for long hours is very fatiguing to women and they may be susceptible to varicose veins. A report of 1,000 cases seen in a foot clinic states that there were 15 women to every man. Of these women, 33 percent had abnormalities of the forefoot, and 20 percent had flat feet. About one-third had severe corns, ingrowing nails, arthritis, or other such conditions. Many of those with forefoot deformities were under 30 years of age.

Lack of exercise, long periods of standing, and inadequate diet contribute to the problem. But a part of it arises from the habit of following unhealthy footwear fashions. High heels, narrow toes, absence of arch support, and thin soles add up to foot trouble. When unsuitable shoes are worn into the factory, where they are especially dangerous, the problem becomes serious.

When jobs require constant standing, rest periods should be allowed and seats be provided for the women. Very often jobs that are done standing could just as well be done while sitting; in such cases women should be allowed to alternate their positions. If this cannot be done, an attempt should be made to rotate the women on standing and sitting jobs, so as to afford some relief to all of them. Women who have foot ailments should be shown the need for proper medical care. Correctional exercises and treatment should be encouraged when they are needed.

One of the most important jobs of the industrial nurse is, of course, to sell the women the idea that broken-down party shoes, loose sandals, or other types of unsuitable shoes must not be worn in the factory. The appeal to the sense of fitness of proper types of shoes, as well as their comfort and safety, can be made a strong one. Moreover, the nurse can point out that sturdy and sensible shoes are especially advisable when rationing limits sharply the number that can be bought.

A safety program in the plant that insists on proper shoes—safety shoes when they are needed—is of major importance. The medical

director of a plant employing many women tells the story of one woman who was wearing a pair of old high-heeled party shoes in the plant. She lost both heels coming down some stairs, fell, and sat down so violently that her coccyx was broken. This incident was the focus of a safety-shoe campaign in the plant; the guilty shoes were paraded around on a truck, and from then on, low-heeled oxfords were the only working shoes allowed in the factory. It is not the part of wisdom, however, to wait until such things happen before dealing with an obvious danger.

Care of the teeth.—It has been stated (34) that many of the absences due to nonoccupational illness can be traced to bad mouth conditions. Thus it is very important, from the standpoint of production as well as that of health, to encourage adequate care of the teeth. At the time of beginning her employment, it would be well if the new worker could have her teeth examined and be told how much and what kind of attention they need. With the proper encouragement and follow-up, teeth can be repaired before they cause much damage and add to the already great sum of days lost because of illness.

In addition to the ordinary run of dental needs are the dangers caused by specific hazardous exposures. It is known that such substances as lead, mercury, phosphorus, and radium may have a far-reaching and destructive effect on the mouth, teeth, and gums. A chart prepared by Dr. Isaac Schour and Dr. Bernard G. Sarnat (35) shows the types of destruction caused by certain substances, and lists occupations that may be considered hazardous for this reason. Thus the importance of taking note of the slightest sign of injury or decay of gums or teeth should be made clear to workers exposed to such special dangers. And all workers, regardless of occupational risks, should learn to know the close relation between good teeth and good health. This means knowing it with conviction, so that they will act on the basis of their knowledge.

Care of the eyes.—The amount of eyestrain and the need for accurate vision involved on the job vary from one occupation to another. But certainly the well-being of the worker and efficiency on the job necessitate good vision and freedom from strain. Tests of eyes should be made that are suitable to the job. Thus, inspection work involving close visual examination will make certain demands on the eyes; operating a crane or driving a truck will make other demands.

The worker should be told when he is in need of corrective lenses, and urged to get them. If safety goggles are required, proper corrective lenses should be put in the goggles.

The Division of Labor Standards of the United States Department of Labor, through the National Committee for the Conservation of Manpower in War Industries, has instituted an important eye-saving program for industry. Through its regional representatives, lectures and demonstrations by a specialist in eye-protection are brought to the plants. Information about this program can be obtained from the Division of Labor Standards. It should be called to the attention of plant management by the nurse, if it is not already known. Advantage should be taken of this opportunity to develop an effective program of education on eye protection for both supervisory personnel and the workers.

The Division of Industrial Hygiene of the Public Health Service points out (36) the need to be concerned not only with protective

equipment and safety practices to guard eyes from injury on the job, but also with the development of standards for visual requirements in different types of occupation. Along with such standards must go examination of workers' eyes to determine what their condition is and to correct defects. The importance of interest and cooperation on the part of workers as well as management is great; and the industrial nurse can help to educate the worker to recognize the need for such a program.

Health in the home.

Of every 10 absences from work due to illness, 9 are due to causes not related to the work itself—illness such as everyone, regardless of his job, may be subject to. Consequently, it is not possible for the medical department to separate sharply the causes of illness and say that it will concern itself only with causes picked up on the job. Just as a worker may carry infection or disease from the plant to the home, so she may carry it in the other direction. Moreover, whatever the source, an absence is still a drain on the worker and a hindrance to production.

The woman who works all day on the job and runs her household as well needs all the help she can get to keep the health standard in her home high enough to protect her and her family from illness. Some plants have established a policy of home visits by nurses when workers are absent through illness. Others avail themselves of the help of visiting nurses from Public Health or other organizations. In either case a nurse going into the home will have an opportunity to assist directly with the health problems she may find there. If she does not visit the home, she must get from talking with the worker an understanding of what her home health problems are.

For more specific help the women can be directed to the medical, dental, and health clinics in their communities, to social agencies, to child-care centers or other groups organized to take care of local war emergency community problems, and to Government agencies such as the Public Health Department.

If there are women counselors in the plant, it should be their function to explore these possible outside services and to direct the women to them as needed. If there are no women counselors, the Personnel Department probably will be in a position to supply such information. In addition, there are in many areas nurses' organizations that can be of assistance in helping the women in the plant. (See pt. V for further discussion of this question.)

Mental hygiene.

On an earlier page it was mentioned that fatigue can develop from mental as well as physical causes; that the relation to her fellow-workers, her supervisor, and her environment has much to do with a woman's ability to produce efficiently. The reason for this lies in the fact, pointed out by Dr. Lydia G. Giberson (37), psychiatrist in the medical division of the Metropolitan Life Insurance Co., that—

* * * the worker, regardless of mass effort or organization, will inevitably remain an individual and maintain his right to the dignity of an individual. * * * The individual is the man who counts.

Added to the task of adjusting to a wartime work program is that of facing the practical difficulties at home and in the community. The working woman struggles against problems of food, transportation, housing and service shortages. This, for the many thousands of inexperienced women now in industry for the first time, comes on top of the difficulties of a strange and demanding work environment.

Add again the personal and individual problems each person faces, and the fact that there are many workers who have considerable difficulty in dealing with them unaided. The sum total is, for some workers, tension and uncertainty that make them unable to keep going without costly effort. At this point, understanding and friendly counsel can be of immeasurable help. Some individuals may come near enough to the breaking point to need medical advice. When this need is apparent, the nurse should be able to discuss with the worker what kind of advice she needs, and show her where to get it. Others, with a chance to talk out their troubles and get some advice, will find themselves able to handle their problems. The nurse's place in this process of adjustment can be a very important one, if she sees and responds to the needs that will be shown. And as Dr. Sappington points out (38)—

* * * morale has definite relationships to other important parts of an industrial health program, such as proper nutrition, fatigue control, and adequate and properly spaced recreation. No people can be expected to maintain top morale who are poorly nourished, who are tired and beset with physical and mental ills, and who do not have a reasonable chance to recover and recuperate through proper food, adequate rest, and simple recreative facilities.

IV. HEALTH AND SAFETY ON THE JOB

Responsibility for guarding the health and safety of women workers on the job belongs to many people in the plant: The production supervisors, the personnel department, the medical department, the safety department, and the workers themselves. The nurse can help the newcomer to understand the importance of this problem, and whether the specific factors involved are or are not her responsibility, she can recognize and point out their effects.

Instruction in health and safety should be a part of the induction training that is essential to the successful employment of inexperienced women. How much of this instruction falls to the nurse depends considerably on the size and the organization of the plant. This question will be discussed later. First must be examined some of the major factors involved, and how they come into the nurse's range of action.

HEALTH PROBLEMS IN THE PLANT

General health factors that carry over into the job.

The common cold.—A factory is as good a place as any in which to spread colds. Dr. W. M. Gafafer, in his outstanding long-term study of illness in industry (39), has indicated the great extent to which respiratory diseases contribute to sickness absenteeism. That colds do contribute considerably to sickness absenteeism is shown also by a number of other surveys. In one such study (40), a study in 1933 of over a million insured persons in England and Wales, there were tabulated 77,180 illnesses among men and 48,466 among women; of these, 23.5 percent and 23.8 percent, respectively, were due to colds, bronchitis, tonsillitis, and similar ailments. A third study (41), in Scotland in 1934-35, showed 8.8 percent of total illnesses among men and 12.4 percent among women to be due to colds, coughs, and tonsillitis. A further study of 5,500 persons over a period of 5 years (42) showed that among the men 32.9 percent, and among the women 42 percent, of all lost time due to illness was caused by colds, influenza, and tonsillitis. These figures indicate that women are somewhat more subject to such illnesses than men, and perhaps need more guidance in protecting themselves.

Thus it is important to watch for the signs of colds, and especially for the conditions within the factory that bring them on. Among other things, proper clothing is certainly a health factor, and one that women, more than men, are likely to disregard. Clothing must not only be safe, in that it does not offer hazards around machinery; it must be suitable to the weather and the working conditions. Working in a hot room, or in a cold one, or moving about from one to the other, demands suitable protective clothing.

If the nurse sees that the women are coming in for treatment for colds, she should find out if they are exposed to drafts, or are in poorly ventilated workrooms. One of the most effective ways of persuading management that action should be taken to improve such conditions is to show that these conditions are resulting in poor health and absenteeism.

Good food.—Part III explained the importance of the right kinds of food and of proper food services in the plant. If there is evidence that the women are failing to get the nourishment they need, it may be either that the means for getting it are inadequate or that the women have not become convinced that they do need it. The nurse may find that a better educational program seemed called for on the subject of food; or that those responsible for the cafeteria and other food services must be urged to make good food available.

Service facilities.—Both the health and the morale of workers are affected by the surroundings in which they work. The rest rooms and washing and toilet facilities available to women can play an important part in maintaining their good health and good spirits. It is obvious that with the great increase in the industrial employment of women there is need also to increase the provision of such services for them.

There are differences of opinion among employers about the use of rest rooms by women. In some plants no cots are provided. A matron may be stationed not only to keep the place clean but to act as policewoman in preventing loitering. Some plants have only toilets and washrooms for women, and no place in which they may rest. In others, it is a policy to allow women to lie down for a short time if necessary, and a suitable room with cots is provided. In still others, women are permitted to go to the dispensary or hospital if they must lie down.

Just what arrangements are best depends on the plant, its size, the number of women, the types of work they do, the size and arrangement of the dispensary, and so on. But it is a short-sighted policy to have no rest room for women workers. Very frequently a few minutes or half an hour of rest is all a woman needs to get her through the day's work without sacrifice of health or efficiency; and thus in many instances a day's absence is prevented.

The use of the dispensary or hospital cots for brief rest periods does not always prove desirable. Many plants with only first-aid stations or a small dispensary have no quiet room separated from the room in which injuries are dressed. In large plants the dispensary may be so far removed from many of the work stations that the women would have to take a 10-minute walk for the sake of a 10-minute rest.

It is important, therefore, that suitably located rest rooms and cots be provided; that these be kept clean; and that the women be permitted to use them as needed. Standards for space and cots in such rest rooms as approved by the American Standards Association may be taken as a guide (43):

Retiring and Dressing Rooms for Women

(a) Where 10 or more women are employed at any one time, at least one retiring room for their exclusive use shall be provided.

(b) Where less than 10 women are employed and a retiring room is not furnished, some equivalent space shall be provided which can be properly screened and made suitable for the use of women employees.

(c) The minimum space provided for a retiring room for 10 women shall be 60 square feet. The minimum increased space for more shall be at least 2 square feet for each additional woman employed.

(d) At least one couch or bed shall be provided in every place where more than 10 women are employed. The number of such beds or couches required shall be as follows: 10 to 100 women, one bed; 100 to 250 women, two beds; and one additional bed for each additional 250 women employed.

(e) Every dressing room shall be provided with separate clothes hook for every female employee.

Washrooms and toilet rooms must be adequate in number, well kept, and conveniently located. On the basis of field investigations the Women's Bureau recommends the ratio of 1 toilet seat to every 15 women employed (44). Standards for washing facilities as approved by the American Standards Association (43, Rule 3-15) provide for at least 1 lavatory, with adequate water supply, for every 10 workers up to 100 persons, and 1 for each additional 15 persons. They also recommend that for workers exposed to skin contamination by poisonous, infectious or irritating material, 1 lavatory with hot and cold water from the same faucet should be provided for every 5 persons. Twenty-four inches of sink with individual faucet is considered equal to one basin.

The responsibility for these facilities varies with the administrative and maintenance organization of plants. Though the plant nurse may not be responsible for them, she is responsible for seeing that the health of the workers is not endangered by lack of sanitary equipment or by inconvenience of its use. No matter who is in charge of these rooms, the nurse is able to use her position in relation to the plant's health program to see that they are adequate.

Health factors having to do with the job itself.

Physical strains.—A good deal has been said and written about the amount a woman should lift and how she should do it. Books and articles have discussed it. States have passed laws saying how much a woman may lift—amounts varying from 15 to 75 pounds. The Women's Bureau bulletin on this subject (45) indicates that carrying too heavy burdens, or carrying incorrectly, may have serious effects on the physical structure of women. Excessive lifting may aggravate menstrual difficulties. Deformities may develop that will cause trouble at childbirth. The effects of pregnancy, such as changes in respiration, pulse rate, composition of the blood, are likely to make a woman especially subject to injury by lifting during this period.

There are two ways in which the nurse can help to protect the women against strain from lifting. One is to teach them the proper way to lift. Often this subject is mentioned in a safety lecture, and a demonstration may even be made to show the difference between right and wrong lifting. But the women themselves must practice enough to get the feel of right and wrong lifting; otherwise it is likely to be merely a discussion without much meaning. The time is well spent in making sure that each woman understands both the technique of correct lifting and the consequences of bad lifting.

The second way is to see that excessive demands are not made with respect to the amount to be lifted. No arbitrary standard can be set for all women; those who are strong and muscular may be able

to lift as much as the average man, or more. Others find their limit in a much lighter weight. Further, the circumstances of lifting and carrying—how often, how far, whether up or down stairs, lifting from the floor or from a bench, lifting above the head—all these will affect the capacity of the lifter.

A woman may have to push a barrow or hand truck filled with material. She may pile lumber or sort scrap or load trucks, all jobs that may involve the handling of relatively heavy material. They involve also posture and changes of posture that may cause strain to the abdominal or the back or other muscles. When women on such jobs complain of physical strain, the nurse can help them by determining what the strain is, what causes it, how it can be removed. Or, if the women prove physically unequal to the jobs, she can help to get them removed to others more suitable.

Another possible source of health injury to be watched for is the use of pneumatic tools, such as pneumatic drills, air grinders, sanders, power wirebrushes, and riveting, scaling, or chipping guns. These vary considerably in weight, from small, very light implements to tools weighing up to 18 or 20 pounds. Naturally, the effects of the heavy tools are likely to be more serious than those of the light ones. The two main kinds of hazard they offer arise from the way in which the tools are held, and from the vibration experienced by the operator. Injuries arising from the former cause are more likely to occur in inexperienced workers, who are unfamiliar with the right way to hold the tool.

Injuries occur also, though very infrequently, to the joints, especially to the elbow of the arm holding the tool. Such injuries are thought to be due to the repeated shocks directly transmitted to this joint from the tool. Further injuries which may be especially serious to women may occur if the tool is held against the chest or the thigh.

Relatively little is known as yet about the extent to which women particularly are affected by the use of pneumatic tools. There is some indication that pelvic disturbances are aggravated, especially if the tools are heavy. There has also been some indication (46) that already existing menstrual irregularities may be heightened by the use of even light riveting guns; though the evidence relates to a small number of women and is not wholly conclusive. In some shipyards where women have been employed on chipping, which involves using heavy guns requiring great strength just to hold them properly in place, they have had to give it up. Scaling guns are used more extensively by women. Since they chip rust and paint from metal surfaces, and do not dig into the metal itself, their action is somewhat less violent than that of the heavy chipping guns.

Other possible sources of injury are noise and dust. The bad effects of these hazards, not peculiar to the users of pneumatic tools, should be watched for in anyone exposed to them.

Perhaps the most important safeguard with respect to the use of pneumatic tools by women is to select the right women for the job. This selection, together with proper adjustment of the job, will help to remove much of the hazard. In the opinion of a number of industrial hygienists who have studied the problem, certain recommendations should be considered when women are assigned to this kind of work. These are presented here.

Women with the following characteristics are best suited for work of this kind:

Above average in stature and muscular development.

The phlegmatic rather than the nervous type.

Having a history of normal menstrual periods.

Women with a history or clinical diagnosis of pelvic disorder, especially pelvic congestion, should not use vibratory equipment, even of the rotary type.

Pneumatic apparatus should not be used by pregnant women, by women who have had repeated pregnancies or abdominal operations, or by women with unusually large breasts.

Adjustments should be made in size and weight of tools for use by women.

Women should not use heavy pneumatic equipment.

A sitting posture is preferable to an upright position.

If standing is necessary, rest periods in the prone or knee-chest position are recommended.

On periodic examination, women showing vasomotor disturbances, nervous or arthritic changes, should be transferred to other work.

Consideration should be given to change of job from time to time.

Counterbalancing, suspending, or propping tools should be done wherever possible to relieve operator of weight and vibration.

Women should not brace tools such as rivet guns against the chest. It is believed that following such practice might aggravate a tendency to develop cancer of the breast.

If the work involves production of silica-containing dusts, techniques for completely controlling them should be employed. This holds, of course, for all workers, men and women.

Posture.—In Part II the relation between poor posture and fatigue was discussed. As with lifting and carrying weights, the women should be taught how to relieve the strain of poor posture. Talks, simple demonstrations, and perhaps charts should be used to bring the point home.

It should be remembered that standing generally is hard on women in any case, and that constant sitting or standing may intensify existing menstrual troubles. When women are pregnant it is even more important that their jobs do not involve continuous standing.

The tools and the lay-out of the job.—Most machines used in industry were built for men. There are relatively few places in which the machines have been especially designed for use by women. Many of them are equally usable by both sexes; but there are others whose design does not fit structurally with the physical design of women. Perhaps the levers are too high for the shorter arm-stretch of most women. Perhaps the distance from floor to table is too great, and this may mean that a woman will have to stretch her leg constantly to manipulate a foot-pedal. Handles are made for a man-size grip, and women find them hard to hold on to, and harder to grip.

The results of such discrepancies may in some cases be strain and fatigue. The nurse is likely to encounter them in sickness absenteeism or the inability of women to perform their job. One industrial hygiene authority (47) has pointed out that—

* * * a foot-pedal operator who has to strain unduly to reach the pedal may suffer from pelvic congestion with resulting harm to pelvic organs.

Such causes can be discovered as the nurse talks to the women, or as she explores the situations in which they do their work. For example, women welders have experienced some difficulty in manipulating the welding tongs; and there are now on the market tongs built narrower and longer than the usual ones to make the woman's grip more sure and at the same time to give the necessary leverage. Many other tech-

niques have been used, such as installing mechanical lifting and holding devices, extension levers, and conveyors. Though these practical questions concern the safety engineer and plant management, the nurse perhaps best of all can observe the effects of the strains that may arise from physical working conditions that are not adjusted to the women's build. It has often been found that such strains can be relieved by relatively simple devices and a little thoughtful planning.

Special health problems of women.

In discussing the physiological problems of women in relation to their work in industry, it is of the greatest importance neither to overestimate nor to underestimate them. On the one hand, unnecessary limitations may be set on the usefulness of women workers and on their opportunities for employment and advancement. On the other, definite harm may be done to a woman worker by allowing her to work under conditions or on jobs that are highly unsuitable for her. A fair attitude supported by sound medical advice will prove most productive and most satisfactory in dealing with the question.

Throughout industry there is a great deal of variety in the method of handling these questions. Policies range from completely ignoring them to setting up rigid regulations. It is important, therefore, to know exactly how much of an issue should be made of the various physiological matters that seem to affect the employment of women. This means trying to discover how much difference they actually make. With her particular relationship to the women workers, the nurse is in a position to find out part of the answer, at least, and to help to remove some of the difficulties that may be very real obstacles in the way of satisfactory employment of women.

A basic prerequisite for the protection of women, and also for placing them on jobs for which they are physically suited, is a good pre-placement physical examination. Any defects that might limit a woman's ability to perform certain jobs should be discovered; and if they can be corrected, she should be urged to have that done for her own sake. Limitations in physical strength should be known before a woman is assigned to a job that might tax her beyond her abilities. At the same time, great care must be taken not to exclude a woman from work she is able to perform. The physical examination should be used solely as a technique for helping to determine the worker's highest physical qualifications and assigning her to the job they fit best.

Menstruation.—One of the reasons why some employers have been reluctant to employ women is that they anticipated periodic disability due to menstruation. This has been a matter of concern because of the desirability of maintaining the work efficiency of the women, and the possibility of injury to their health through the work they are given to do.

Two things should be remembered in considering this problem: First, that the discomfort that sometimes accompanies menstruation comes regardless of whether women work or not, and second, that there are industries that have for decades employed women, and these workers have remained steadily and productively on the job.

It may be true, however, that certain operations are generally harmful for women because they contribute to menstrual discomfort or disturbances, and that other operations are injurious only to some women. Earlier in this discussion, for example, the possible danger of using

pneumatic tools was mentioned. It is therefore desirable to separate two questions that are likely to be confused: To what extent does the work affect a woman's menstrual function? and to what extent is she subject to menstrual pain regardless of the job?

It sometimes happens that a woman who has not had any difficulty will begin to experience it when she starts on a factory job. After a history of regular and painless periods, they may become irregular, too frequent, longer or shorter than normal, or unnatural in other ways. Because the physiological function is closely related to emotional states, such conditions are often brought on by the tension, nervousness, and initial strain that rise from the new and strange conditions of the job. When the worker becomes acclimated, the tension eases off, she is more sure of herself and more at home, and the irregularities of menstruation may disappear.

Though menstruation is not, in itself, an industrial problem, it is true that women do lose time from work because of it. It is also true that in many plants certain simple steps have been taken that appear to relieve the discomfort and thereby reduce absenteeism. Therefore it is advisable for the nurse to find out how much menstrual troubles seem to affect the working efficiency of the women in the plant, and to consider the following remedies:

The desirability of having cots in a quiet room where women can lie down for a brief period has been mentioned. This opportunity for relaxation is especially important for some women during the menstrual period, and has been found to contribute greatly toward a saving of time and efficiency in work.

Some physicians recommend the application of a heat pad or the use of an infra-red heat lamp to relieve dysmenorrhea, and sometimes they give simple medication. These steps should of course be taken only under the instruction of the physician; but they have been found to be helpful.

The use of physical exercises for the relief of dysmenorrhea is recommended by some physicians. These exercises, which are very simple, are designed mainly to correct posture defects that contribute to menstrual pain because of pressure on pelvic organs. A number of prolonged experiments with them have indicated a noticeable diminution of dysmenorrhea, and have been followed by lowered absenteeism rates from this cause. Sources of information about such exercises are listed at the end of this pamphlet. They should be used, of course, only under the guidance of the physician.

Perhaps the most useful thing that can be done to diminish this problem, and one that the plant nurse can do better than anyone else, is to establish a wise attitude toward it on the part of the women themselves. Physicians state repeatedly that much of the discomfort of menstruation is psychological, and stems from faulty health education. If this periodic process can be seen by the women as a normal healthy function and not as an affliction, it will be almost certain to cause them less distress. The fact is that a great many women do see it in this light, and many others can be persuaded to do the same.

A maternity policy in industry.—The question of the employment of pregnant women in industry concerns a relatively small proportion of women workers. But the problem appears to be of some moment

to employers at this time, for several reasons. The majority of working women are in the child-bearing years; because of the war many married women are working who otherwise would not be; and the inexperience of some employers with women workers causes them a bit of panic in the face of possibilities that they scarcely know how to handle.

To establish a maternity policy that will protect both the plant and the worker is not difficult. It can be done with mutual understanding; and the nurse can perform an important service in creating this mutual understanding. For one thing, it should be remembered that most women work because they have to; and that many times a woman who is a prospective mother may especially need to work. For this reason, employment should be made possible for her as long as she can work without injury to herself or her child.

Moreover, many physicians say that work, if it is not excessive in hours and does not involve exposure to hazards, usually is good rather than bad, at least during part of the pregnancy period. Dr. H. Close Hesseltine, speaking of the recommendations of the Committee on the Health of Women in Industry of the Section on Obstetrics and Gynecology of the American Medical Association (48), says—

So far, there is no available data which would indicate that ordinary employment is detrimental to the early pregnant state in normal women.

It is the usual practice in plants not to hire women who are known to be pregnant; and it is almost equally common to discharge them as soon as pregnancy is discovered (49). Such a policy, however, encourages women to conceal their pregnancy as long as possible. Under such circumstances a woman may continue to work at a job or in a place that offers considerable hazard to her health and safety, and may make her a hazard to the people with whom she works. Moreover, the first three months of pregnancy, which are the most easily concealed, are also more precarious than the next three months. At this early date, then, women particularly need protection; but unless there is a policy in the plant that will encourage them to report their condition, they cannot avail themselves of protection. The plant also will profit from knowledge of the women's condition by assuring itself that women will be kept on suitable jobs and thus experienced workers will not be lost, and by being protected against the risk of accident among women doing heavy or hazardous work at a time when they are not fitted to do it.

Standards for such a maternity policy have been recommended in a pamphlet published by the Women's Bureau and the Children's Bureau of the United States Department of Labor, listed at the end of this bulletin and available on request. It indicates the points that should be considered: The importance of judging each case individually; the time at which a woman should stop work before the birth of her child, and how soon afterward she may return to work; the types of jobs that should be avoided because of danger of physical strain or injury from toxic substances; the preservation of seniority rights, the opportunity to return to her job, the length of hours and rest periods, and other conditions of work.

One point perhaps should be emphasized. The transfer of a woman from a hazardous to a nonhazardous job is one way of enabling her to continue work during part of pregnancy, and of preventing the

loss to the plant of a trained worker. Such transfer must be made in accordance with plant policy, and on the advice of the physician who understands what the jobs entail and what the woman's physical condition allows. Otherwise, transfer is likely to depend on the will of the woman's immediate supervisor and be subject to a natural reluctance on his part to disturb his work set-up.

Throughout the process of establishing and using a good maternity policy, the nurse's role is central. From her personal knowledge of the women she can watch for cases that need attention. In her relationship with them she can encourage them to ask for and use the advice of their own and the plant physician, and can point out to them the importance of modifying their work program to fit the needs of the coming child. In her position within the administrative organization the nurse can urge on management the wisdom and the necessity of such a policy, and because her work in the plant is often more continuous than that of the physician she will be able to inform him of the cases that appear to need his attention.

One further point in relation to this subject should be mentioned. This is the fairly widespread rumor that women who do arc welding may for that reason become sterile. Medical evidence does not bear out this possibility. In answer to an inquiry on the subject, the National Institute of Health of the United States Public Health Service (50) points out that the main exposures in arc welding are to ultraviolet rays, ozone, oxides of nitrogen, and heat. None of these hazards will give rise to sexual impotence as the sole effect. A number of diseases, occupational or other, such as lead or benzene poisoning, typhoid or pneumonia, may result in a temporary diminution of sexual capacity; but this is believed not to arise in the absence of other characteristic features of the specific disease. Further, experiments to determine whether the light from arc welding gives off injurious rays, such as X-rays, have produced no evidence of any light-waves shorter than the ultraviolet in the arc. The best medical evidence indicates that radiation from arc welding cannot in itself produce injury to or destruction of the sexual organs.

The menopause.—The increase in the number of older women in industry has brought up the question of the menopause as affecting production. This, like menstruation, is not an industrial problem, and should be dealt with, if necessary, by the woman and her private physician. It too, however, may impress itself on industry by causing loss of time from the job and perhaps by a lessening of work efficiency. Therefore it is something that the plant nurse should be aware of if it arises among the women workers.

In general, physicians have pointed out that if there are no abnormal symptoms, such as would require medical attention, and no menopausal psychosis, the menopause is not a factor that needs be considered in the employment of women. When a woman is struggling with such disturbances, however, and finds difficulty in coping with her day-by-day problems, a considerate and understanding attitude can help her. Some physicians have suggested a change to light work requiring not much concentration or physical effort if the woman has been on a heavy or difficult job.

The attitude of the woman toward the menopause probably is a major factor in determining how she will continue her usual activities.

She should be helped to see it as an ordinary and normal process, and not as a break-down in her capacity for normal living.

In this, as in all matters relating to the health of the women workers, the nurse's greatest assistance to them may be summarized in two things: First, by her own interest and understanding building confidence in the medical department, so that the women will go for help when they need it; and second, by knowing the specific conditions in the plant that may help or hinder good health standards, and urging on those responsible the improvement of conditions that affect the health of the workers adversely.

Occupational diseases.

The danger of exposing workers to diseases arising from their work has always been serious in some industries. With the war, a number of factors have made it even more serious. One is the introduction of new materials, chemicals, or processes into a plant without time to discover first whether they carry with them any unknown hazards. Another is the great expansion of plants and of employment, which has taxed the safety facilities in industry, often beyond their capacity. A third factor is the inexperience of many new workers, who must learn to recognize the possible hazards of their jobs before they can be protected adequately against them.

The subject of occupational disease in industry is as complicated as the problem of fatigue and is highly technical. Even to define the term "occupational disease" is not easy. Does it refer exclusively to a disease for which a particular process is responsible, such as lead poisoning that comes from the use of lead in glazing pottery, for example, or does it cover also diseases arising indirectly from exposures, as a pneumonia resulting from working in cold, damp weather? There has been in recent years a tendency to widen the concept of occupational disease to include all diseases suffered as a consequence of work, whether directly or indirectly brought on. This tendency is shown in various State workmen's compensation laws, which are coming more and more to extend their coverage.

This report will not attempt to list the occupational diseases, nor to discuss their nature, their symptoms, or their effects on the worker. It is intended only to point out the fact that women are exposed to a variety of hazards of occupational disease, and that there are certain places where the industrial nurse should look for evidence of such hazards. From making felt hats to welding ships, the list of jobs is paralleled by a list of hazards. Of course, many of these hazards are adequately guarded against by plant engineering, good house-keeping, and personal protective equipment. And in many occupations they do not arise at all. However, the nurse should find out for herself, or from the medical officer and from the safety director, which of them exist in the work that women are doing in the plant. The Division of Labor Standards of the U. S. Department of Labor has issued an excellent guide (51) to occupational hazards, which is of great help to the nurse in identifying the effects of specific exposures. J. J. Bloomfield, of the Industrial Hygiene Division of the United States Public Health Service, has pointed out (52) how the nurse can make a practical survey of occupations in her plant that might give rise to occupational diseases. If she keeps a record of such

occupations by plant department, she has a quick reference to possible causes for illness when women come into the dispensary. Sample forms issued by the Public Health Service, on which such records can be kept, and which can be adapted to the plant's needs, are obtainable from the Government Printing Office or from the local agencies offering nursing consultant services. These agencies are listed at the end of this pamphlet.

What are the kinds of diseases that attack workers through their jobs? The majority of them, it has been found, are of two types: Industrial poisonings and dermatoses (53). In addition (54), there are diseases arising from the following causes:

Abnormalities of air pressure, temperature, and humidity.

Dampness.

Defective illumination.

Dust.

Infection.

Radiant energy.

Repeated motion, pressure, shock, etc.

There are a number of published statements naming the various occupational diseases that arise from these causes. They give also information on how much exposure constitutes a hazard; the symptoms of the diseases, how frequently they occur in certain industries, what the consequences are to the workers, and how protection may be achieved. References to some of these sources are given at the end of this pamphlet.

Which of the causes mentioned above furnish a hazard to the workers with whom a nurse is concerned is something that she can find out only by knowing her own plant. When the women come to her for help, she should know not only what work they do but the conditions under which they work. With respect to possible poisoning, for example, the nurse should find out whether the women have been working with lead, mercury, benzol, or other substances that might produce symptoms of poisoning; whether they have been exposed to dust, fumes, or vapors that might harm them.

It should be remembered that working with such materials does not in itself constitute a hazard. If protection is adequate, the worker is safe. And responsibility for determining whether this is the case obviously rests with the safety experts. The importance to the nurse of knowing the facts about the conditions of work in the plant is that when a woman becomes ill some such hazard may be a source of the illness. The nurse's knowledge of the possible existence of the hazard may help to bring about a quicker cure and to prevent a recurrence.

Poisonous substances may be introduced into the body through inhaling, through the skin, or by way of mouth. Inhaling dusts, fumes, vapors, or gases is the most common way in which workers are poisoned. Sometimes workers handle dangerous materials and then handle food without washing their hands, or eat at their workbench and so ingest poisons with their food by way of mouth. Provision of proper washing facilities should be an invariable rule for such workers, perhaps supplemented by a prohibition against eating at the workbench. In some occupations, such as handling radium, inhalation is particularly dangerous; but carrying poisonous substances to the mouth through lack of careful washing of hands may also constitute

a hazard. Workers should be convinced of the importance of avoiding such practices.

One of the most helpful factors in protecting the women is to tell them what hazards exist in their jobs and how to guard against them. Further, they should be reminded frequently of their responsibility for being careful. The importance of safe work habits must be emphasized until they become second nature.

There has been much discussion about whether women are more susceptible than men to certain poisons. This is a question on which doctors themselves do not always agree. It is held by some, for instance, that women are more susceptible to lead and benzol poisoning than men are, and that in the case of lead they are more subject to the extreme type of poisoning that attacks the nervous system and the brain. Whether or not this is true, the important thing is to remove the hazard, so that no one, whether man or woman, will be exposed to it at all, to any harmful degree. The whole trend in present industrial safety practice is to do just this—to remove the source of danger rather than try to give individual protection to the person exposed to it.

Many women are in jobs that involve the use of oils, grease, and cleaning solvents. They may be running a lathe, which uses a coolant; they may be packing parts, first dipping them in a protective oil; they may be cleaning metals preparatory to painting or polishing. Such operations often get the hands into liquids that have a seriously irritating effect on the skin, sometimes developing one or another type of rash. Outbreaks of dermatitis are among the most common cases of occupational disease. Frequently they are not lasting in their effects, but even so they cause discomfort, pain, and loss of time from work. There are a number of protective lotions and creams designed to furnish protection of the skin against irritants. Which type is most effective will depend on the agent causing the trouble and on the particular susceptibility of the worker's skin, and these matters should be determined by the physician who knows these factors as well as the chemical nature of the protective substance.

Individuals vary considerably in their susceptibility to dermatitis, according to the texture of their skin, their pigmentation, and other factors. Nurses do well to watch for those women who are most subject to this disease, and to have them transferred to other occupations in which they are not exposed to it.

Much is being done to remove irritants from oils, lubricants, and solvents used in industry. But authorities on dermatoses make it clear that one of the most effective protections lies in exercising the greatest care in matters of personal hygiene. The women exposed to skin irritants should be convinced that careful hand-washing to remove such elements is absolutely essential as protection against dermatitis.

At the same time it should be remembered that in some instances a harsh soap does more harm than cutting oils. For this reason the soap supplied in the washrooms should be carefully chosen, and this is an item that the nurse can help to control. The medical officer will know what soaps are best for the purpose, and the nurse will know whether the women are finding the soap supplied irritating to their skins.

Sometimes hazards arise out of the conditions of work, rather than the exposure to certain substances. Do the women work out-of-doors in bad weather, or alternate between a heated room and the cold? Do they work in excessive heat, or dampness, or in poorly lighted or poorly ventilated rooms? These also are questions the answers to which will help the nurse to understand the ailments of women who need the help of the medical department.

SAFETY ON THE JOB

Within the past two decades the function of a safety program in industry has expanded greatly. Such programs are recognized as preventive measures; both worker and employer are concerned to prevent accidents. Safety is recognized as an integral part of plant operation; it is built into the plant and is related to all the operations and to all the conditions of work. The extent to which this is true varies, of course, from plant to plant. Some plants have as yet developed very little safety-awareness, whereas others have well established programs of accident prevention.

The responsibility for such programs rests, primarily, on the safety department. But everyone in the plant bears some of it. The nurse can contribute a large share toward building safety by recognizing and reporting the points at which special attention is needed, and by helping to develop safety mindedness in the workers. The importance of the nurse in this field is indicated by the fact that nurses are becoming increasingly interested in safety training. Safety training courses are being offered under the sponsorship of the United States Department of Labor and the United States Office of Education. In a number of cities industrial nurses are taking these courses, and find them effective in giving the basic facts about safety which the nurses need.

The need to be aware of safety problems.

Every new worker is a possible source of danger, to himself and to others, until he learns the elements of safety on the job. This is especially true of some of the women now coming into war plants, who have never had any association with factory conditions and have never been exposed to the kinds of hazards they present. Their complete lack of industrial experience and their general unfamiliarity with tools and machinery make it especially important in their introduction to the factory to stress safety. They must acquire a safety-awareness that can only be brought about by special effort on the part of those responsible for inducting them into the job.

This safety-awareness cannot be attained from a few minutes' talk on safety when the women first come on the job. It is the result of continued education. And the nurse is in a very strong position to help in this education. The women come to her when they are injured, or at other times when they are psychologically ready to listen to what is told them about safety.

The kinds of accidents that women have.

A woman working on an unguarded press had a finger cut off. After the accident, guards were placed on all the machines.

A woman got up to leave her machine. Walking across the floor she tripped over a chair and broke her arm.

A laborer climbed on a box to reach some material. The box tumbled, she also tumbled. The accident cost her 2 days of working time.

A packer unloading and lifting boxes sprained her back so severely as to keep her at home for a week.

Another laborer standing on a box that tumbled over received injuries to head, shoulder, and pelvic bone.

The operator of a lapping machine had some hair pulled out when it got caught in the machine.

A girl hurrying to her work across a parking lot fell and sprained an ankle.

A laborer fell over the tongue of a truck, suffering a fracture that disabled her for 54 days.

A woman operating an overhead electric crane in a shipyard climbed down the ladder from the cabin to the floor. The ladder had no rail. She was wearing "wedgies"—shoes with no heels. She slipped; her shoe could not catch on the rung because it had no heel; there was no hand-rail to grab. She fell to the floor and broke her arm.

A man working near the ceiling of an electric plant dropped a pipe. It struck a woman below, disabled her for over three weeks, and caused the loss of use of one finger.

On her first day at work a munitions handler in an ordnance depot was helping another woman to control the movement of 500-pound bombs down a conveyor. She decided that the bombs were moving too fast, and tried to slow them by putting her foot up against one of the crates containing the bombs. Her foot caught between the moving crate and the conveyor, and she fell off the platform. She lost 7 days of work.

The question why women have such accidents is complicated, but it must be asked if accidents are to be prevented. Obviously, many factors are involved. Some of these factors are personal, such as wearing improper clothing, doing things in a reckless way, being unskilled in handling the job or ignorant of its dangers, reluctance to follow safety rules, and so on. The munitions handler had been working less than a day; she might well be expected not to understand the ways of conveyors. With proper safety instruction new workers can learn what to look out for, and before they acquire that knowledge they can learn to be on their guard.

The accident to the crane operator was a combination of faulty clothing and faulty working conditions. If the ladder had been railed, and if she had had heels to her shoes, the likelihood of her falling would have been much less. And though she might be unable to do anything about the railing, she should have been instructed to wear the right kind of shoes and should have worn them.

Climbing on a pile of boxes, instead of on a set of steps or a ladder, is a good example of poor safety habits. So is working around moving machinery with unprotected hair, as the lapping-machine operator did. Other factors have to do with the working environment, such as the situation of the workman who dropped the pipe on a woman below; or the machine that was unguarded until someone lost a finger

on it; or the crane ladder without a railing. All these factors involve the need for responsibility on the part of management, first for setting up safe conditions in the shop, and then for safety education of the workers.

It must not be forgotten that many accidents, even those inside the plant, are not related to the specific work the women are doing. One of the most common types of accident to women is falling—falling on the street, on stairs, while walking through the factory. This fact is indicated by the report of temporarily disabling injuries for which women received workmen's compensation in Pennsylvania in 1941 (55).

Power machinery, such as drill presses, punch presses, sewing machines, accounted for about 21 percent of these injuries, or just over one in five. One in four were listed under "working surfaces," and four-fifths of these were injuries caused by floors and stairs—stumbling, tripping, falling. It seems clear from this that women have a safety problem in addition to that brought on by the machine or operation itself. Education is the only answer, education and training, which the nurse can help to secure for them.

As increased numbers of women are taken into industry, their age range necessarily broadens. More young girls and more older women are employed. The same Pennsylvania report shows that between 1939 and 1941 the number of girls 21 years of age and younger increased by almost 15 percent. The number between the ages of 22 and 40 was practically unchanged; and those over 40 increased by over 26 percent. These are changes in the numbers of women who had injuries on the job that disabled them for more than a week. The increasing number of accidents to women reflects, of course, the increase in their employment; there are more women exposed to the possibility of industrial accident. These figures, though including only statistics for the State of Pennsylvania, show the trend that is indicated throughout the country.

Because of the increased employment of women of all ages, it is to be expected that the proportion of industrial accidents that occur to women also will increase. This is supported by figures issued by the Industrial Commission of Wisconsin (56). Of all injuries reported to this commission, the proportions that were injuries to women rose between 1939 and 1943 as follows:

	<i>Percent</i>
1939-----	6.8
1940-----	7.1
1941-----	6.8
1942-----	9.3
1943-----	14.0

Even within the year 1943, an increase from quarter to quarter is noticeable. Percentages for the four successive quarters of 1943 were: 11.8, 13.2, 15.0, and 16.0, giving an average of 14.0 percent. This increase in accidents to women means chiefly, of course, that more women are employed. But it is also to be expected that they will do more and more of the hazardous jobs from which at first they were largely protected; and this will be an additional source of increased injury. That is why everything that can be done by the nurse to combat the injuries and illnesses of the women in the plant is of great value, not only to them but to the achievement of the fullest and most efficient production in the plant.

Helping the women to be safe.

Much that has been said on earlier pages about health problems can also be said about safety. In both instances the two strong bulwarks are, first, the acceptance by management of responsibility for good health and safety programs; and second, the education of workers to assume, in turn, their share of responsibility. The nurse can help in both these aspects: First, by calling to the attention of the proper authorities the information she can get from the women and from her own observation; and second, by taking an active part in educating the workers for health and safety. With respect to the safety problem itself, here are some of the points at which the nurse can be of use.

Safety clothing.—For most women clothes have always been a subject of intense interest; and generally women have come to accept certain traditional ideas about style and function of dress. Now more than ever new ideas are intruding themselves into this customary way of thinking. One of these ideas is *safety*. Hundreds of thousands of women are coming to judge their work clothing by whether or not it is safe to work in. This idea, new to so many women, takes some time to be firmly rooted; and though they are learning, they may need to be urged and persuaded to bring into practical use this notion of the special suitability of their clothing for their work.

Standards for work clothing have been described in the Women's Bureau Special Bulletin 3, *Safety Clothing for Women in Industry*, and detailed requirements have been established by the American Standards Association (see references). Private industry, the Army, and the Navy have all set up standards for the women who work in their factories, arsenals, shipyards, and other places. It is not necessary to describe here what the specific requirements are. But the nurse can see whether the clothes the women wear to work meet the safety standards of the plant. Further, if the plant does not have such standards, or if there is no rigorous application of them, she can urge that they be made an important part of a safety program. She can also talk to the women about the need for this, pointing out the specific places at which they risk injury through unsafe clothing. Sweaters or other loose garments, unsuitable and uncomfortable shoes, jewelry, flowing hair—these are the most obvious sources of injury.

Hazardous jobs.—Some women can undertake jobs with a certain physical risk better than other women can. Some are better at climbing; or they are stronger and can lift weights more constantly; or they can undertake relatively heavy clean-up jobs. Physical stamina is a requirement of a number of jobs in which women are employed, and those who are without it where it is needed are likely to suffer accidents. Other types of hazard require steady nerves and a calm disposition—as, for example, the handling of explosive materials or some of the pneumatic tools.

The placement of the right woman on the right job is, of course, the work not of the nurse but of the personnel department. But the final test of whether this is done lies in what happens on the job. The nurse is often in a better position than others—even than the foreman—to know when a woman is doing something that is beyond her power to do safely. In such circumstances the nurse should be able and ready to urge the transfer of women from the work they

are doing to something more suitable for them. If she knows what the jobs are, and the health and strength of the women who are doing them, and if she knows them understandingly, she can be of great assistance in pointing out assignments of work that carry with them special risks to the safety of the individual and perhaps of those working with her.

An open eye for bad spots.—In plants that are well supplied with safety inspectors or safety committees, hazardous working conditions generally are found out promptly. In departments in which foremen and other supervisors are well trained in the principles of safety, such conditions do not escape discovery. But in plants without a rigorously enforced safety program, or lacking trained personnel, there is a need for vigilance on the part of everyone. The nurse can contribute her share of this vigilance as she walks through the plant, keeping her eyes open for hazards that often are obvious but ignored. Safety manuals list them in detail. Among them are the effects of poor housekeeping such as crowded or narrow aisles, poorly placed materials, irregular floors that offer a tripping hazard, dangerously loaded trucks, dark passageways or corners, broken or unguarded stairs, inadequate or glaring lights. There are, of course, many others; but these are the ones most apparent on casual observation. Other dangers may be discovered from a study of the accident records in the dispensary or first-aid room. In many plants the study of these records is an essential part of the safety program; in others, they are used very little except in determining whether a person is fit to go back to work or in cases involving workmen's compensation. By reporting to management her own observations of any suspect conditions throughout the plant, and by making use of or urging the analysis of the records she keeps, a nurse can contribute greatly to the safety of the workers and to the efficiency of the plant.

V. TAKING PART IN A HEALTH AND SAFETY PROGRAM IN THE PLANT

Earlier sections of this bulletin have pointed out some of the specific problems that women workers face as they come into the plant, and ways in which the industrial nurse can help them to solve these problems. They deal with both the personal and the plant factors that contribute to good or bad health on and off the job; safety practices and the understanding of hazards; special physical or psychological characteristics that may affect the performance and continued efficiency of women.

A good many of these are matters that come up in the ordinary course of the nurse's contact with workers, as indicated earlier. It is important for the nurse to pick up whatever casual references to them a woman may make when she goes to the dispensary for some other reason. It is even more important to recognize these problems as contributing to the difficulties a woman may be struggling under though she does not speak of them. She may not realize their effect, or may be reluctant to bring them up. If the nurse knows what the circumstances of the work and environment are, and recognizes the possibility of health difficulties, she is often able to clear up the obvious trouble.

Even such enlightened observation on her part, however, is not sufficient. Unless plant management recognizes the importance of this service and builds a planned program for health and safety, the nurse's efforts are likely to have only sporadic and limited effect. Where such a program exists, her job should be incorporated into it. Where it does not, she needs to convince management of its importance in the attainment of a high standard of work performance and efficiency.

This part of the report is not intended to describe the total program that might be developed, which may differ widely from plant to plant. Many factors determine its form, in addition to the all-important one of management's interest. Among these factors are: Size of plant; kind of equipment; nature of work; existence of hazards; size and organization of medical department; organization of other departments, such as safety, training, and personnel; and relation between departments.

How much the nurse will be called on or be able to do, with respect to the program of the plant, will depend largely on these factors. A few of the more important points at which she can contribute may be indicated here:

1. In an earlier section of the report emphasis was put on the induction period as the time for introducing safety and health care to the new workers, especially to the women industrially inexperienced. It was pointed out that giving specific facts about the hazards involved on the job and the way of guarding against them must be an

important part of the induction program. These hazards are not only the conditions inherent in the job, such as weight-lifting, exposure to poisonous substances, or the operation of machinery. They include—though “hazards” may be too strong a word—the ordinary daily events that may develop health or safety difficulties on the job: Colds, lack of proper food or sleep, discomfort due to unsuitable clothing, the strangeness of the sights and sounds and smells of a factory, the awkwardness of handling new tools and going through new motions, unfamiliarity with the types of relationship set up in a shop. To acquaint the incoming woman with such of these factors as constitute health matters, and to show her how the nurse can help her to deal with them, is an important part in the induction program. The extent to which the woman is prepared for her job will have a good deal to do with how quickly and satisfactorily—to herself and to her employer—she can become integrated into the plant life.

Such work should be followed up in the day-to-day contacts with the women. Some of the ways in which this can be done are listed in the paragraphs following.

2. The knowledge gained by the nurse of plant conditions that need attention should be passed on to responsible management officials. This is especially necessary where there is no safety department or person specifically responsible for ferreting out unsafe or unhealthy conditions. It is necessary when, in their visits to the medical department, workers show signs of illness or injury arising from unsuspected sources—hitherto unexposed plant hazards.

The same thing can be said when the nurse has evidence that women are on jobs for which they are not physically suited, or which put an undue burden on their health and energy. She should be able to suggest transfers for health reasons when they seem necessary.

It is obvious that the working-out of this activity will vary with the structure of the medical department. If there is a physician only on call or only on part time, more of the responsibility for such action will fall on the nurse than if there is a full-time physician in the plant. Even in the latter case it will often happen that the nurse can learn directly from the workers their need for such aid. They will not always go to the physician for help; they may not be aware that they need it. Such cases can be brought to the physician's attention by the nurse, so that he can investigate more fully the condition of the worker and follow up with whatever action is appropriate.

3. In plants having a planned safety-and-health program, the nurse's understanding of and relationship with the women can be very helpful in dealing with problems calling for the cooperation of many departments and the working together of people with various functions, such as medical, safety, personnel, supervision, and training. Problems that arise in any of these fields very frequently have bearing on the others, and in order to integrate policy and action, conferences and discussions among the various people should be held. In such discussions the nurse can contribute to the understanding of the others the knowledge she has gained in her own field, and can show the workers' need for help on specific questions. It is important, for instance, for the safety engineer to know whether women find equipment difficult to manipulate for reasons of physical strength or size. The foreman should know which women in his department are especially

susceptible to dermatitis from a solvent used in some operation, so that he will assign less sensitive workers to that particular job. The personnel director should know that a general rundown condition is responsible for consistent absenteeism on the part of certain workers. Seldom are any of the factors affecting the health or efficiency of workers isolated from all other factors. Usually they are a combination of health, safety, supervision, and personnel, or at least of some of these. A free exchange of information about problems among those concerned with these various aspects of the plant functioning is necessary if fullest use is to be made of the special skills of each.

4. It is important to know the community resources in matters of health, in order to be able to refer the women to them as need arises. One of the most useful sources of aid and information is the industrial nursing consultant in the industrial hygiene division of the local department of public health or department of labor. About half the States have such service; and in the others the nurse can turn to the local medical association or nurses' organization to find out what can be done to aid the women in cases of specific health needs that go beyond the responsibilities of the plant medical department.

The appended list of industrial nursing consultants (p. 42) shows in which States such service is available. These consultants will discuss with industrial nurses the plant and the home-nursing problems that the women workers face, and will help either in dealing with them at the plant, if that is where they should be dealt with, or in finding the proper nursing, medical, or clinical help in the community for problems outside the jurisdiction of the plant medical department.

Other community agencies that it is important to know are the child-care, social welfare, and recreation services. The need to refer women to these services will, of course, vary considerably. Some of the factors that will determine this are: The kind of community in which the plant is situated, the relation of the plant to the community, and whether the women have recently come into the region to fill a labor need or are residents of long standing.

If there is a woman counselor in the plant, she will of course be the person to establish such community contacts for the women workers and advise them where they may receive help on their home problems. But where no woman counselor exists, the nurse is the logical person for the women to consult.

5. One of the ways in which the nurse can aid most fully in the plant-wide program is to encourage and take part in the various educational activities. Among these the following should be mentioned:

Health committees.—Safety committees made up in whole or in part of the workers are becoming more widely recognized as important in plant programs. Their value is twofold: First, they are extremely useful in creating and holding the interest of the workers in questions of safety; second, they give to plant management the benefit of the workers' ideas. Since the problems of safety closely concern the workers, because they are the ones who suffer when accident or illness occurs, their contribution to establishing a good record of safe practices can be considerable.

Health committees similar to such safety committees should be established. Because health problems in the plant are primarily the concern of the nurse, she can advocate and help to develop these com-

mittees and encourage the workers to participate in them. Women as well as men should be urged to take part in the work of the health committees. Women who have had no industrial experience will find this an excellent way of learning about the problems involved and what their own responsibility is. They also may be better able than men to bring out and to help in the solution of those health problems that most closely concern themselves.

Management, if not already agreed, should be induced to see the advantages of health committees as a technique for improving both the plant conditions and the workers' understanding of their own place in creating and keeping a high standard of health in the plant.

The plant paper.—A good medium for health propaganda is the plant paper. Articles on health, nutrition, safety, recreation, and exercise can keep these matters in the minds of the readers. Special series addressed to women workers can give information on the particular matters they are concerned with, such as food preparation, care of children, appropriate work clothing, and available community services for health and recreation. The nurse can supply many of the facts and ideas that go into such articles, or write them herself. Coming from her in her professional capacity, they probably would have special weight with the women who read them.

Leaflets, posters, pamphlets, and films.—References at the end of this study (p. 46) give sources for printed material in the form of leaflets and pamphlets carefully prepared to meet the needs of workers. Leaflets on food, for example, are designed to be easily read and to contain suggestions and recipes that are simple to follow. It is very important not to overburden the women, already beset by many responsibilities, with material which they have not the time, nor the energy, nor the interest, to use. But this material is not a burden, it is a time-saver.

Posters emphasizing simple health facts should be displayed on well-stationed bulletin boards. When safety or health committees are dealing with special problems over a period of time—a drive for the use of goggles, say, or care of colds, or eating well-balanced meals—posters covering these special subjects will add strength to the drive and will bring to the fore ideas to which workers are at the time particularly susceptible.

These are matters for which the nurse certainly will not be wholly responsible, but she can undertake to see that authentic health information is available and to bring out the information that deals specifically with the health problems confronting the workers in her particular plant. And if there is no one else with the drive and foresight to carry out such an educational program, it will amply repay effort on the nurse's part in terms of increased health-mindedness on the part of the workers.

State, County, and City Agencies That Offer Industrial Nursing Consultant Services

[As of May 1944]

California-----	Bureau of Industrial Health, California Dept. of Public Health, 2002 Acton St., Berkeley 2, Calif.
Los Angeles County-----	Division of Industrial Hygiene, Los Angeles County Health Dept., 808 N. Spring St., Los Angeles 12, Calif.
Los Angeles City-----	Division of Industrial Hygiene, Los Angeles City Dept. of Health, 116 Temple St., Los Angeles 12, Calif.
Connecticut-----	Bureau of Industrial Hygiene, Connecticut Dept. of Health, Hartford 1, Conn.
Georgia-----	Industrial Hygiene Service, Division of Preventable Diseases, Georgia Dept. of Public Health, Atlanta 3, Ga.
Illinois-----	Division of Industrial Hygiene, Illinois Dept. of Public Health, 1800 W. Fillmore St., Chicago 12, Ill.
Indiana-----	Bureau of Industrial Hygiene, Indiana Board of Health, 1098 W. Michigan St., Indianapolis 7, Ind.
Iowa-----	Division of Public Health, Engineering and Industrial Hygiene, Iowa Dept. of Health, Des Moines 19, Iowa.
Kansas-----	Division of Industrial Hygiene, Kansas Board of Health, 812 National Reserve Bldg., Topeka, Kans.
Massachusetts-----	Division of Occupational Hygiene, Massachusetts Dept. of Labor and Industries, 23 Joy St., Boston 14, Mass.
Michigan-----	Bureau of Industrial Hygiene, Michigan Dept. of Health, Lansing 4, Mich.
Mississippi-----	Division of Industrial Hygiene, Mississippi Board of Health, Jackson 113, Miss.
Missouri-----	Industrial Hygiene Section, Division of Public Health, Engineering and Industrial Hygiene, Missouri Board of Health, Jefferson City, Mo.
New Hampshire-----	Division of Industrial Hygiene, New Hampshire Board of Health, Concord, N. H.
New Jersey-----	Industrial Hygiene Service, New Jersey Dept. of Health, 637 Broad St. Bank Bldg., Trenton, N. J.
Newark City-----	Division of Industrial Hygiene, Newark City Dept. of Health, Plane and Williams Sts., Newark, N. J.
New York:	
Syracuse City-----	Division of Industrial Hygiene, New York Dept. of Labor, 766 Irving Ave., Syracuse, N. Y.
New York City-----	Industrial Hygiene Cooperative Unit, New York City Dept. of Health, 12-26 31st St., Long Island City 2, N. Y.

North Carolina-----	Division of Industrial Hygiene, North Carolina Board of Health, Raleigh, N. C.
Ohio-----	Industrial Hygiene Division, Ohio Dept. of Health, State Office Bldg., Columbus, Ohio.
Cincinnati-----	City Dept. of Health.
Oregon-----	Division of Industrial Hygiene, Oregon Board of Health, 410 Oregon Bldg., Portland 4, Ore.
South Carolina-----	Division of Industrial Health, South Carolina Board of Health, Columbia 10, S. C.
Tennessee-----	Division of Preventable Diseases, Tennessee Dept. of Public Health, Nashville 3, Tenn.
Memphis-----	City Dept. of Health.
Texas-----	Industrial Hygiene Section, Bureau of Sanitary Engineering, Texas Board of Health, Austin 14, Tex.
Utah-----	Division of Industrial Hygiene, Utah Board of Health, Salt Lake City 3, Utah.
Vermont-----	Division of Tuberculosis and Industrial Hygiene, Vermont Dept. of Public Health, Burlington, Vt.
Washington-----	Division of Industrial Hygiene, Washington Dept. of Health, 1412 Smith Tower, Seattle 4, Wash.
West Virginia-----	Bureau of Industrial Hygiene, West Virginia Dept. of Health, 1584 Washington St., East, Charleston 1, W. Va.
Wisconsin-----	Industrial Hygiene Unit, Wisconsin Board of Health, State Office Bldg., Madison 2, Wisc.

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- Metropolitan Life Insurance Co., Policyholders' Service Bureau, New York, N. Y.
- Servel, Inc., Evansville, Ind.
- Westinghouse Electric & Manufacturing Co., Mansfield, Ohio.



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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, Secretary

WOMEN'S BUREAU

MARY ANDERSON, Director



Changes in Women's Employment During the War

By

MARY ELIZABETH PIDGEON



SPECIAL BULLETIN No. 20 OF THE WOMEN'S BUREAU

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EMPLOYMENT OF WOMEN IN THE WAR PERIOD

SIGNIFICANT FACTS

Employed in December 1941, as reported March 1944—12,090,000.

Employed March 1944—16,480,000. (Increase, 36 percent.)

61 percent were in labor force before Pearl Harbor.

50 percent in *same occupation group* as formerly.

In labor force in both periods—10,230,000.

69 percent were 20–44 years old.

42 percent single; 30 percent married, husband present.

Women who left labor force—2,180,000.

21 percent were 45 years old or more.

62 percent were married, husband present.

93 percent went to home housework.

New entrants to labor force—6,650,000.

55 percent were 20–44 years old.

44 percent single; 36 percent married, husband present.

56 percent were home houseworkers; 34 percent in school.

Women not entering labor force—33,260,000.

43 percent were 45 or over, 14 percent under 20.

65 percent were married, husband present.

	Percent change 1940–44	Proportion employed	
		1940	1944
Woman population, 14 and over.....	+4	22. 0	31. 5
Single women.....	–6	38. 3	53. 6
Married women.....	+8	13. 9	22. 5

Great employment shifts occurred between occupations.

Manufacturing and clerical occupations gained most.

The manufacturing industries differed greatly.

In war industries, 49 percent came from outside the labor force, 26 percent from other industries. In essential supply industries only 37 percent came from outside the labor force, 54 percent were in same industry as before the war.

NOTE.—As reported for December 1941 and March 1944 by women interviewed in March 1944. Does not take account of all changes occurring *between* the two dates.

Changes in Women's Employment During the War

One of the most spectacular of the changes that have characterized the period since the Pearl Harbor attack is the tremendous shift in the work of women to meet this country's needs for industrial products. This has occurred in many cases through women's own volition, but in large measure it has been in response to urgent calls for their services.

After two years of great and rapid transition in women's employment and occupations, the need has been felt increasingly for further data on the over-all extent and character of the movement. Aside from their widespread interest, such data are of the utmost importance in shaping both immediate and future administrative policies.

In the first place, the effectiveness of continuing plans to carry forward this country's program for production and services depends to a considerable extent on the response women are making to the great efforts to call them to work outside their homes. Further, wise provision for the necessary adjustments after the war requires a background understanding of employment needs and possibilities, on which much light can be thrown by a fuller knowledge of the experiences during the war.

SOURCE OF NEW DATA ON EMPLOYMENT OF WOMEN

The Bureau of the Census publishes monthly estimates, for men and women separately, of total civilian employment. These are based on interviews with households in a national sample which has been in operation since the spring of 1940. The present sample includes some 30,000 households located in 123 counties selected in such a manner as to provide national estimates of the major labor-force characteristics of the population.¹

In connection with this reporting, special additional questions sometimes are asked for a particular month. In the spring of 1944, the Bureau of the Census responded to a request by the Women's Bureau of the U. S. Department of Labor for the inclusion of questions to afford data on the shifts in the employment and occupations of women between the week immediately preceding the Pearl Harbor attack and a week in early March 1944. Throughout this discussion, comparisons of earlier and later data refer to the week of December 1-6, 1941, and the week of March 5-11, 1944, the interim thus being about 2½ years.²

¹ For further information as to sample, consult the Bureau of the Census.

² In one or two instances comparisons are made with data from the decennial census of 1940, because data for December 1941 are not available for certain particular comparisons. This will be explained where discussed. (See footnote 11, p. 9.) The use of 1940 for the present questions, instead of December 1941, was considered, but it was felt that the later date would afford more accurate replies, since persons interviewed can remember more vividly the Pearl Harbor date and the time just preceding than a time approximately 4 years before the date of interview.

The questions added to the usual monthly schedules were as follows:

- (1) For all persons 14 years and over, enter activity during week before Pearl Harbor, December 1-6, 1941.
- (2) If at work or had a job during the week before Pearl Harbor, enter occupation and industry of that job.

The data resulting from these questions are of even greater value because correlations with age and marital status could be made in addition to those on employment and occupation. Marital status could be included because a special question on that subject had been asked in the preceding month. Age was obtainable because such a question is a part of the regular schedule, this information being of vital importance, for example, to the draft boards. Caution is necessary in regard to the use of material developed from a sample of this type, especially since in this case its content is of such wide national interest. The data give a revealing picture of various relationships—for example, as to the types of shifts occurring in and out of the labor force or between various industries or occupations, or as to the age or marital status of women in and not in the labor force. However, since they are estimates from a sample they do not completely measure the exact sizes of particular groups, especially of the smaller groups.³

WOMEN AS A PERMANENT PART OF THE LABOR FORCE

Many people have not realized the very large extent to which women are a permanent part of the labor force. The dominance of the war situation, with its urgent call to women to take employment and its large increases in the numbers of them who have gone to work, has tended to obscure the fact that women long have been a very substantial and increasing part of the country's labor force. In the 50 years prior to 1940, the proportion of workers who were women increased from 17 percent in 1890 to 24 percent in 1940, as the following shows.

	<i>Percent women were of all workers</i>
1890.....	17. 2
1900.....	18. 3
1910.....	21. 2
1920.....	20. 5
1930.....	22. 0
1940.....	24. 3
1944 (March).....	32. 9

WAR INCREASES IN WOMAN EMPLOYMENT

In spite of the fact that in 1940 women already constituted over 24 percent of the labor force, the number of women who have sought to meet the new war needs is almost breath-taking in its magnitude. The number of employed women reported increased by 36.4 percent in a period of a little more than 2 years—from the week preceding the Pearl Harbor attack to the week of March 5 to 11, 1944, when the new figures were taken. These data are as follows:

	<i>Number of women employed</i>
December 1-6, 1941.....	⁴ 12, 090, 000
March 5-11, 1944.....	16, 480, 000

³ See note 1 on p. 1.

⁴ These are women who in March 1944 said they also were employed in December 1941.

Actually, the number of women going to work within this period has been far greater than these over-all figures would indicate, for of those at work before Pearl Harbor many had left employment by March 1944 and been replaced by new workers. For this reason, the entire number of new women entrants, not employed in early December 1941, totaled 6,650,000.⁵

Chief Sources of New Woman Labor Supply.

Where did this startling number of additional women workers come from? More than half of the new entrants had come to work from their homes, and about a third of them had been in school. The following summary indicates these and the minor sources of the new women workers:

<i>Source of new women workers</i>	<i>Number (in thousands)</i>	<i>Percent</i>
Total-----	6, 650	100. 0
Home housework-----	3, 710	55. 8
School-----	2, 280	34. 3
Under 14-----	240	3. 5
Other-----	80	1. 2
Labor-force status not ascertainable-----	340	5. 1

The response these new women workers have made to the needs of their country, their communities, and in many cases their own families indicates that when vital need arises women are available to meet it. When women are as ready as this, under voluntary systems, to take their part, compulsory methods appear entirely unnecessary, unless this country as a whole should face far more extreme situations than seem likely to arise. Furthermore, the willingness of a great body of women to come forward when the situation demands it places a corresponding responsibility squarely on the shoulders of industry and public authorities to include in their planning full consideration of the extent to which women are a large and normally increasing part of the labor force.

Women Who Left the Labor Force.

Though more than 80 percent of the women who reported that they had been employed before Pearl Harbor were still working in March 1944, over 2 million women—18.6 percent of those who were at work in December of 1941—left the labor force between the two dates under comparison. A consideration of where these women went may be of constructive interest to those who are planning for adjustments of workers after the war.

Of the women who left, more than 90 percent went to home housework, some were unable to work, and a very much smaller number went to school. Their numbers and distribution were as follows:

<i>March 1944 status of women who left labor force</i>	<i>Women who left labor force Number (in thousands)</i>	<i>Percent</i>
Total-----	2, 180	100. 0
In home housework-----	2, 020	92. 7
Other-----	160	7. 3

⁵ This takes no account of the multitude of shifts between occupations, nor of other changes in the interim period. For discussion of the former, see section on War Shifts in Women's Occupations, p. 10.

Distribution of Woman Population as to Employment or Activity.

Of the entire female population of 14 years and over in March 1944, practically 20 percent were in the labor force both before Pearl Harbor and in March 1944, and in addition about 13 percent entered in the period between these two dates. A small proportion were women formerly in the labor force who had left it by March 1944. More than 60 percent of the women in the United States were not in the labor force either before Pearl Harbor or in March 1944. Over three-fourths of these—more than 25½ million women—were home houseworkers in both periods, small proportions were in school or unable to work at both times, and nearly 2½ million were under 14 before Pearl Harbor. This leaves almost 2 million women, besides a proportion of the home houseworkers, who still might be available if further additions to the country's labor forces are needed.

The women who have not gone to work undoubtedly are those whose economic situation neither requires nor tempts them to do so. There also are a number of localities where war industries have not developed, and women who for family reasons are unable to migrate have no increased opportunity for employment. Since Government contracts are now being curtailed, and in various parts of the country women who do need their earnings are being laid off, there appears to be little evidence that employment needs cannot be solved by a proper use of the existing labor force without calling on this reserve group of women.

The basic figures for the foregoing discussion ⁶ of the present situation are as follows:

<i>Activity status</i>	<i>Distribution of woman population</i>	
	<i>Number (in thousands)</i>	<i>Percent</i>
Woman population 14 and over, March 1944.....	52, 320	100. 0
In labor force March 1944.....	16, 880	
In labor force both before Pearl Harbor and in March 1944.....	10, 230	19. 6
Entered labor force between December 1941 and March 1944.....	6, 650	12. 7
Not in labor force March 1944.....	35, 440	
Not in labor force at either date ¹	33, 260	63. 6
Both dates:		
Home housework.....	25, 550	
In school.....	1, 580	
Unable to work.....	1, 790	
Under 14 before Pearl Harbor.....	2, 440	
Other ¹	1, 900	
Left labor force between December 1941 and March 1944.....	2, 180	4. 2

¹ Includes 570,000 with status not reported for December 1941.

⁶ See footnote on p. 3.

WAR SHIFTS IN WOMEN'S EMPLOYMENT IN MAJOR OCCUPATION GROUPS

The great net increases in woman employment do not show the shifts in and out of the labor force, nor the very considerable shifts between major groups of occupations. The March 1944 woman labor force is made up as follows:

	[In thousands]
Women employed March 1944.....	16, 480
In same occupation as formerly.....	8, 370
Not in same occupation as formerly.....	8, 110
Changed occupation.....	1, 460
Were unemployed formerly ¹	230
Entered labor force.....	6, 420

¹ Includes those on emergency work.

Women Remaining in the Same Occupation Group as Before Pearl Harbor.

Of 9,830,000 women who were employed both before Pearl Harbor and in March 1944, 85 percent (8,370,000 women)⁷ had remained in the same occupation groups in which they formerly worked. In every occupation group, more than three-fourths of the March 1944 women employees who were in the labor force before Pearl Harbor had remained in the same group as before. The summary next presented shows how the occupation groups differed in extent of retaining their women workers.

Perhaps it is of even greater significance that half of the total number of the women in the *entire March 1944 woman labor force* were in the same occupation group as before Pearl Harbor. This was true of more than 70 percent of the professional and semiprofessional and proprietary workers, more than 60 percent of those in domestic service and farm occupations. However, only a little over 40 percent of the sales, manufacturing,⁸ and service workers other than domestic were in the same occupation as formerly, as were only about 50 percent of the clerical employees.

Occupation group	All women employed March 1944 (in thousands)	Women who in March 1944 said they were in same occupation group as before Pearl Harbor		
		Number (in thousands)	Percent of—	
			All women employed before Pearl Harbor and in this occupation in March 1944	All women in the group in March 1944
All occupations.....	16, 480	8, 370	85.2	50.8
Professional and semiprofessional.....	1, 490	1, 080	96.0	72.8
Proprietors, managers, and officials.....	650	460	86.6	71.1
Clerical and kindred.....	4, 380	2, 210	86.5	50.5
Sales.....	1, 240	510	86.5	41.2
Craftsmen, foremen, operatives, and laborers except farm.....	4, 920	2, 060	78.2	41.9
Domestic service.....	1, 570	1, 000	90.9	63.9
Other services.....	1, 650	700	76.4	42.5
Farm workers.....	560	340	93.8	60.8
Not classifiable.....	20	(1)		

¹ Less than 1,000.

⁷ See table below, this page.

⁸ This is the group craftsmen, foremen, operatives, and laborers except farm. It will be referred to in discussion as "manufacturing," though a small proportion of these workers are in other types of industry.

Labor-Force Status Before Pearl Harbor of Women Employed March 1944, by Occupation Group.

The occupations of women in March 1944 differed considerably in the proportion of their women workers who had been in the labor force (though not necessarily in the same occupation group) in the week before Pearl Harbor. For example, as the following summary shows, more than 70 percent of the women who in March 1944 were in the proprietary, professional, and domestic-service groups were in the labor force before Pearl Harbor. On the other hand, more than 50 percent of the women who were in sales, as well as more than 40 percent of those in the groups that had increased most largely, manufacturing and clerical work, were not in the labor force in December 1941, but entered employment directly from activities outside the labor force that engaged them before Pearl Harbor.

Occupation group	Percent ¹ of women employed in March 1944 who before Pearl Harbor were—	
	In labor force	Not in labor force
All occupations-----	61.0	39.0
Proprietors, managers, and officials-----	82.4	17.6
Professional and semiprofessional-----	76.3	23.7
Domestic service-----	71.0	29.0
Farm workers-----	65.0	35.0
Clerical and kindred-----	59.5	40.5
Services other than domestic-----	57.5	42.5
Craftsmen, foremen, operatives, and laborers except farm--	55.9	44.1
Sales-----	48.0	52.0

¹ For numbers, see table 4 in the appendix.

Women Who Entered the Various Occupational Groups After Pearl Harbor.

Though one occupation group had sustained a net loss,⁹ in March 1944 every group had some women who were not so employed in December 1941. Of the total 8,110,000 women who came either from other occupations or from entirely outside the labor force, the largest proportion came from home housework, with the exception of clerical workers, to whom the schools furnished the largest group. The groups second in size that entered semiprofessional, sales, and farm occupations were from the schools, and to proprietary or managerial work more women transferred from other occupations than entered from any source except home housework. Manufacturing and service industries each acquired similar proportions of women workers from schools and from other occupations in the labor force. The following summary shows these data:

⁹ 1944 compared to 1940. See p. 9, summary and footnote 11.

Occupation group	Women entering group since Pearl Harbor (in thousands)	Percent of entrants to group who came from—			
		Other occupations	Home housework	School	Other activities
All occupations.....	8, 110	18. 0	44. 4	27. 0	10. 6
Professional and semiprofessional.....	400	11. 1	44. 6	34. 9	9. 4
Proprietors, managers, and officials.....	190	38. 0	52. 9	4. 8	4. 2
Clerical and kindred.....	2, 170	15. 9	30. 7	44. 8	8. 7
Sales.....	730	11. 0	50. 1	28. 8	¹ 10. 1
Craftsmen, foremen, operatives and laborers except farm.....	2, 860	20. 1	50. 9	19. 1	² 10. 0
Domestic service.....	570	17. 6	46. 8	15. 7	¹ 19. 9
Other services.....	950	22. 9	45. 0	19. 1	² 12. 9
Farm workers.....	220	10. 3	58. 1	18. 9	¹ 12. 8
Not classifiable.....	20	23. 2	48. 6	18. 3	9. 9

¹ Major group formerly under 14 years of age.

² 3 or 4 percent formerly unemployed.

Occupation Group in March 1944 of Women Not in the Labor Force Before Pearl Harbor.

More than half of the 6,420,000 women employed in 1944 who had entered the labor force since December 1941 were from home housework and about a third were from the schools. As has been mentioned, the major groups of new women workers went into manufacturing and clerical work, with the service and the sales groups next though acquiring considerably smaller numbers.

There were differences in the types of occupation that engaged women who had been home houseworkers, in school, under 14, or unemployed. Of the home houseworkers, 40 percent went into manufacturing, slightly less than half as many into the clerical and into the combined service groups, 10 percent into sales occupations. Of the school girls, nearly 45 percent became clerical workers, a fourth went into manufacturing jobs, and very roughly a tenth each into the sales and the combined service groups. A small but perhaps significant proportion went from school into semiprofessional types of work.

Of the girls who were under 14 before Pearl Harbor, 85 percent still were in school in March 1944. Of those who went to work after Pearl Harbor, only a very small proportion were unemployed in March 1944. The remainder naturally were young workers, for the most part with very little experience. Consequently, until they can acquire further training, their opportunity for employment is found chiefly in those occupations that do not demand much experience. Nearly half of them had taken work in domestic or other service occupations, about a fifth sales jobs, and very roughly a tenth each were in manufacturing, in clerical occupations, and on the farm.

Though the proportions of women unemployed just before Pearl Harbor were relatively small, considerable numbers of them had found jobs in one or another occupation by March 1944. It is not surprising that the largest groups of these had been taken on in the manufacturing and clerical lines of work, in which total increases were so great, and by service industries (especially other than domestic) which needed replacements badly since they were losing to the manufacturing and clerical groups. Very few went to professional or semiprofessional occupations, fewer yet to sales, fewest of all to proprietary and farm jobs.

The summary following shows the 1944 occupational distribution of these major groups of workers who entered the labor force after Pearl Harbor.

Occupation group	Percent distribution by occupation group of employed women who in March 1944 said that before Pearl Harbor they were—		
	Outside the labor force (total)	In home housework	In school
Total (in thousands).....	¹ 6,420 100.0	3,600 100.0	2,190 100.0
Professional and semiprofessional.....	5.5	5.0	6.4
Proprietors, managers, and officials.....	1.8	2.8	.4
Clerical and kindred.....	27.6	18.5	44.3
Sales.....	10.0	10.1	9.5
Craftsmen, foremen, operatives, and laborers except farm.....	33.8	40.5	24.9
Domestic service.....	7.1	7.4	4.0
Other services.....	10.9	11.9	8.3
Farm workers.....	3.1	3.5	1.9
Not classifiable.....	.3	.3	.2

¹ For numbers see table 4 in appendix.

Former Occupation Group of Women Who Shifted to New Occupations.

Of the women employed both before Pearl Harbor and in March 1944, there were 1,460,000 who changed their occupation group. The factors normally of greatest influence with women in making such shifts are the strength of demand in an occupation and the extent to which the worker can better her situation by the change. During the war period patriotic motives are added to these. Thus the movements tend to be toward those occupation groups that are seeking workers most urgently, notably the manufacturing, clerical, and to a less extent the service occupations other than domestic.

The movements also tend to be, naturally, toward the occupations considered more desirable than the ones engaged in, because of better conditions of work, higher pay, wider opportunity, or other inducement. Thus women formerly in domestic service have gone to other services and to manufacturing; those in other services have gone to the manufacturing and sales groups; those from manufacturing and sales, to clerical jobs; those from clerical, to manufacturing, managerial, and professional and semiprofessional work. Shifts in both directions have been considerable as between sales and manufacturing, between sales and clerical, and between domestic service and farm work.

New Employment of Women Who Changed Occupations.

Many of the 1,460,000 women who changed their employment after Pearl Harbor went into strikingly different lines of work. Over half those leaving service occupations and clerical work and some 40 percent leaving the professional group went to manufacturing. Practically half or more of those leaving sales, manufacturing, and the proprietary group went into clerical occupations. Of those leaving the farm, 60 percent went to domestic service.

Net Gain or Loss in Each Occupation Group Since 1940.

As might be expected, the greatest net increases in employment from the time of the 1940 Census to March 1944 have been in the manufacturing¹⁰ and the clerical groups, which have added more than 2½ and 2 million women, respectively, some of them formerly in other occupations or unemployed and others not previously in the labor force. The sales group and services other than domestic have added roughly 400,000 each; the proprietary group, over 200,000; the farm occupations, a very much smaller number. It must be remembered that neither of the periods under discussion reflected the great seasonal employment on the farms that occurred in summer. The gain in the professional and semiprofessional group is trifling, and there has been an actual loss of just over 400,000 in domestic service.

The result of these changes is that the manufacturing and clerical occupations now engage a much larger proportion of all employed women than was the case in 1940.¹¹ The two occupation groups that ordinarily may be considered at opposite ends of the scale so far as training requirements are concerned, domestic service and professional employments, have in 1944 smaller proportions of all women workers than formerly. The remaining occupations—services other than domestic, sales, farm, and proprietary groups—have much the same proportions of the employed women as in 1940.

The following summary shows these data:

Occupation group	Number of employed women in March 1944 (in thousands)	Net changes since 1940 ¹		Percent distribution in—	
		Number (in thousands)	Percent	1940	March 1944
All occupations ²	16,480	+5,340	+48.0	100.0	² 100.0
Professional and semiprofessional.....	1,490	+20	+1.2	13.2	9.0
Proprietors, managers, and officials.....	650	+230	+33.3	3.8	3.9
Clerical and kindred.....	4,380	+2,010	+44.5	21.3	26.6
Sales.....	1,240	+460	+35.4	7.0	7.5
Craftsmen, foremen, operatives, and laborers except farm.....	4,920	+2,670	+51.7	20.2	29.9
Domestic service.....	1,570	-400	-20.4	17.7	9.5
Other services.....	1,650	+390	+20.9	11.3	10.0
Farm workers.....	560	+90	+18.6	4.2	3.4

¹ Figures used for 1940 comprise the employed and also those seeking work who were experienced in the occupation. See note 11, this page, for reason for comparison with 1940 occupation data. The 1940 figures include the experienced unemployed, since they were a part of the labor force needing jobs, though their occupational allocation refers only to the occupation last engaged in and not their usual or normal occupation.

² Total exceeds details, since those in occupations not classifiable are not shown separately.

Over-all Employment and Occupation Shifts of Women.

In addition to the women newly entering the labor force, the previously unemployed who now have jobs, and those who changed from one occupation group to another, a statement of occupation shifts must note the 2,250,000 women estimated to have left the labor force in the period between 1940 and March 1944.¹² The combined shifts in

¹⁰ See footnote 8, p. 5.

¹¹ The 1940 data are used for this one comparison for the following reasons: The available tabulations show March 1944 occupations of women according to employment or activity status before Pearl Harbor. A complete occupational count of those employed just before Pearl Harbor cannot be had, since the occupation distribution of those in the labor force before Pearl Harbor but having since left the labor force is not available. The nearest approach to occupational data for this latter group is in assuming that their occupational distribution was approximately the same as that of all women in the 1940 labor force, which has been done for the discussion on pp. 8-9 and in table 6.

¹² This does not take account of individuals making several shifts within the period.

employment and occupations had affected more than 10½ million women, not very far short of the whole number of women employed in 1940.

Adding to this the women who remained in the same occupation group as before gives a grand total of employment and shift data for 18¾ million women. This number, roughly 37 percent of the country's whole woman population,¹³ has been involved in productive and service processes in the short period of about 2¼ years from the week before Pearl Harbor to March 1944. The summary following shows the figures contributing to this over-all picture of employment and shifts.

	[In thousands]
Total reported (remained in employment and shifted employment, combined)-----	18,730
Remained in same occupation-----	8,370
Shifted occupation or changed employment status-----	10,360
In labor force in 1944-----	8,110
Not before in labor force-----	6,420
Formerly unemployed (out of a job)-----	230
Shifted from one occupation to another ² -----	1,460
Left labor force before 1944-----	2,250

¹ See note 13, this page. Takes no account of those not reporting 1944. See note 5, p. 3.

² See note 12, preceding page.

Another method of illustrating the magnitude of the shifts that have occurred is by comparing them with the March 1944 employment in each occupation group. Such a comparison shows a general shifting of more than 60 percent in and out of occupations in terms of present employment. The shift in the sales group and in service other than domestic has been more than 70 percent as great as the March 1944 woman employment; in domestic service and in manufacturing, more than 65 percent as great. Least shifting has occurred in professional and proprietary occupations. The summary following shows these shifts for each occupation group.

Occupation group	Ratio of over-all employment shifts ¹ to total March 1944 employment
Total-----	62.9
Professional and semiprofessional-----	47.1
Proprietors, managers, and officials-----	42.1
Clerical and kindred-----	60.5
Sales-----	71.5
Manufacturing-----	67.4
Domestic service-----	61.5
Other services-----	72.9
Farm workers-----	56.3

¹ Total comprises 10,360,000 women who shifted into and out of the labor force or changed occupations. See table 6 of appendix.

¹³ See summary on p. 22.

CHANGES IN WOMAN EMPLOYMENT BY INDUSTRY GROUP

Practically half the women employed in March 1944 were in the same broad industry group as formerly, as the following summary shows:

	[In thousands]
Women employed March 1944	16, 480
In same industry group as formerly	8, 220
Not in same industry group as formerly	8, 270
From other industry groups	1, 620
Formerly unemployed	230
From outside the labor force	6, 420

Women Remaining in Same Industry Group as Formerly.

Tabulation by industries from this material necessitates combinations into very broad groups. Though the particular occupation greatly influences shifts between industries, data from the sample do not permit correlation of occupation and industry. The summaries following indicate the combinations made along broad industrial lines.

It is not surprising that manufacturing had the smallest proportion of employees who were in the same industry class as formerly (except for the mining-construction-Government group, containing only a relatively small number of women; it is merely a residual group).

The largest proportions of the March 1944 women workers in the same industry group both before Pearl Harbor and in March 1944 were those in the domestic, personal, and recreation services; in the finance, business, and repair, and professional services; and in agriculture.

Industry group	Women in the industry group in March 1944 (in thousands)	Women in the same industry group December 1941 and March 1944	
		Number (in thousands)	Percent of all in the industry group in March 1944
All industries	16, 480	8, 220	49. 9
Agriculture	580	350	60. 5
Manufacturing ¹	5, 590	2, 380	42. 6
Transportation, communication, public utilities	680	330	48. 0
Trade, wholesale and retail	3, 190	1, 530	47. 8
Finance, business, repair, professional	2, 680	1, 630	61. 0
Domestic, personal, recreation services	2, 660	1, 660	62. 5
Other (mining, construction, Government, forestry, fishing) ²	1, 080	330	30. 7
Not ascertainable	20	(3)	-----

¹ See p. 12 for industries included in each manufacturing group.

² These were combined, since this is an "other" industry group.

³ Less than 5,000.

Women Who Remained in the Labor Force.

Of the women employed in March 1944 in the business-professional group and in domestic and other services, about 70 percent were in the labor force before Pearl Harbor. On the other hand, only 55 to

57 percent of those in trade, in manufacturing, and in the mining-construction-Government group formerly were in the labor force, as appears in the following:

Industry group	Percent who before Pearl Harbor were—	
	In labor force	Not in labor force
All industries	61.0	39.0
Agriculture	64.8	35.2
Manufacturing ¹	56.8	43.2
Transportation, communication, public utilities	60.9	39.1
Trade, wholesale and retail	56.2	43.8
Finance, business, repair, professional	69.6	30.4
Domestic, personal, recreation services	69.1	30.9
Other (mining, construction, Government, forestry, fishing)	54.6	45.4

¹ See text following for industries included in each manufacturing group.

The Various Manufacturing Industries.

Manufacturing industries have been tabulated in separate divisions in order to show the shifts in woman employment between the various types of manufacturing industries, shifts which are of particular importance in wartime. Group I contains the workers in major war manufacturing—in the metal, chemical, and rubber industries. Group II is composed of workers in the consumer industries that supply both the civilian population and the armed forces with essentials—food, clothing, textiles, and leathers. The remaining manufacturing employees are placed in group III. As the following summary shows, group I, the essential war industries that have expanded so rapidly, differed from the two other manufacturing groups in two respects: Its labor force included much smaller proportions of its own former employees, and its recruitment of new personnel was very much greater from within the labor force as well as from outside sources.

Manufacturing group	Women in the industry group in March 1944 ¹ (in thousands)	Percent who formerly were—			
		In same manufacturing group	In another manufacturing group	In industry groups other than manufacturing	Outside the labor force
All manufacturing	5,590	38.0	4.6	12.0	43.2
Group I	2,690	23.6	7.7	17.7	49.1
Group II	2,160	53.8	1.0	5.8	36.9
Group III	730	43.8	4.3	9.8	40.3

¹ Totals exceed gross details; in all manufacturing, about 2 percent were unemployed; in group I, 2 percent; in group II, 2.5 percent; in group III, 1.8 percent.

New Entrants to Each Industry Group.

With one exception, the largest numbers of new entrants to every industry group came from home housework, and in almost all groups the second largest number came from the schools; however, 20 percent of the total shifted from other industry groups. Home houseworkers made up nearly 60 percent of the newcomers to agriculture and half those to the domestic-and-personal-service group; and in each of these, schoolgirls were 18 percent of the new workers. On the other hand, the situation was reversed for the transportation-communication group, home houseworkers constituting only 26 percent of the new employees and girls out of school 46 percent. Workers from these two sources

were more nearly equal in number in the business-professional group. The residual mining-construction-Government group differed from the others in that almost as many women newly employed came from other industry groups as from home housework, in each case nearly a third. This and manufacturing group I drew from other industries larger proportions than any other group, and agriculture, trade, manufacturing II, and the services group drew least from other industries.

Regarding those from other sources, the major groups in agriculture and the domestic and personal services were under 14 years of age before Pearl Harbor. Considerable numbers of women formerly unemployed were taken on in each manufacturing group, in trade, and in the miscellaneous mining-construction-Government group. Manufacturing II and the business-professional group took considerable numbers of girls formerly under 14, but larger numbers of those formerly unemployed.

Industry group	New entrants to the industry since Pearl Harbor (in thousands)	Percent who came from—			
		Other industries	Home housework	School	Other activities
Total.....	18,270	19.6	43.5	26.5	10.4
Agriculture.....	230	10.5	58.5	18.1	² 12.9
Manufacturing.....	³ 3,210	21.0	45.6	24.8	8.6
Group I.....	2,060	33.2	39.9	20.5	⁴ 6.4
Group II.....	1,000	14.7	43.3	25.8	⁵ 11.2
Group III.....	410	25.2	38.4	28.3	⁴ 8.1
Transportation, communication, public utilities.....	360	24.1	26.4	45.6	4.0
Trade, wholesale and retail.....	1,670	14.3	45.4	28.4	⁴ 11.9
Finance, business, repair, professional.....	1,040	19.9	39.6	32.4	⁵ 8.1
Domestic, personal, recreation services.....	1,000	15.0	49.7	18.0	² 17.2
Other (mining, construction, Government, forestry, fishing).....	750	31.3	31.5	26.6	⁴ 10.6

¹ Total exceeds details, as industry for 10,000 new entrants not ascertainable.

² Major group under 14 before Pearl Harbor.

³ Details here exceed total entrants to all manufacturing industries, as 260,000 women shifted from group to group within manufacturing.

⁴ Major group formerly unemployed.

⁵ Includes considerable numbers of those formerly under 14, but larger numbers of unemployed.

Distribution of New Entrants to Labor Force.

Of the women who entered employment from home housework, 40 percent went to manufacturing, chiefly to groups I and II, about half as many to trade, 14 percent to the domestic and personal services, and a somewhat similar proportion, 12 percent, to the business and professional group.

Of the newly employed schoolgirls, proportions similar to those of home houseworkers entered the total manufacturing and trade groups, but a very much smaller proportion went into the domestic and personal services.

Of the girls under 14 entering the labor force, 40 percent went into trade, 35 percent to the domestic and personal services, nearly 10 percent to agriculture. Relatively few entered manufacturing industries, none the third group.

More than half of the unemployed went to manufacturing, chiefly to groups I and II, but very roughly a tenth of them went to each of the

groups of trade, domestic and personal services, mining-construction-Government, and business-professional.

Industry group	Percents entering the industry groups specified who before Pearl Harbor were—	
	In home housework	In school
Number of women (in thousands).....	1 3,600	1 2,190
Percent.....	100.0	100.0
Agriculture.....	3.7	1.9
Manufacturing.....	40.6	36.3
Group I.....	22.8	19.2
Group II.....	13.4	11.7
Group III.....	4.4	5.3
Transportation, communication, public utilities.....	2.6	7.4
Trade, wholesale and retail.....	21.0	21.6
Finance, business, repair, professional.....	11.5	15.4
Domestic, personal, recreation services.....	13.8	8.2
Other (mining, construction, Government, forestry, fishing).....	6.6	9.1

¹ Total exceeds details, as industry group not ascertainable for very small proportions.

Major Shifts Between Industry Groups.

The over-all of shifts between industry groups made in the war period by women who were employed both before Pearl Harbor and in March 1944 involved nearly 2 million women. The largest proportions who entered the various manufacturing groups, the transportation-communication, and the mining-construction-Government groups were from trade. Women entering agriculture, trade, and business-professional went in greatest numbers from the domestic and personal services. Manufacturing group I gained from group II, and each of the manufacturing groups gained from the domestic and personal services. It must be borne in mind that these figures are estimates based on a small sample.

More than 60 percent of the women who left agriculture went to the domestic and personal services. The major war manufacturing industries (group I) attracted more than 50 percent of those leaving manufacturing (groups II and III) and 30 to 40 percent of those leaving the trade, business-professional, and domestic-and-personal-service groups. However, some women went from manufacturing I to the mining-construction-Government group, as did the largest number of those leaving transportation-communication. These may have been largely clerical workers. Of those leaving mining, construction, and so forth, the largest proportion went to business-professional.

Net Gain or Loss in Each Industry Group Since 1940.¹⁴

Woman employment increased by nearly 50 percent from 1940 to March 1944. However, this does not take account of the 1,710,000 women who were on emergency work or unemployed in 1940, who in reality were a part of the labor force at that time. Addition of these to the 1940 labor force reduces the increase in woman employment by 1944 to about 36 percent.

As would be expected, the greatest increase was in the war industries

¹⁴ See footnote 11, p. 9, for explanation of use of 1940 figures for comparison here, and footnote 1 to summary on p. 9 concerning inclusion of experienced unemployed.

(group I of manufacturing). Next came the mining-construction-Government group, and then transportation-communications. Much smaller increases than elsewhere occurred in the business-professional and agricultural groups, and the domestic and other services group declined considerably.

Naturally, in 1944 a very much larger proportion of the woman labor force than in 1940 was in the war manufacturing industries, and the small proportion in the mining-construction-Government group almost doubled. Smaller proportions of the women employed in 1944 than in 1940 were in the domestic and other services group and the business-professional group. The remaining industry groups contained fairly similar proportions of all women workers in 1940 and in 1944, this being true also of the manufacturing groups II and III, not the primary war industries. The following summary shows the changes in industry distribution of woman employment, 1940 to 1944:

Industry group	Women employed in March 1944 (in thousands)	Net change in woman employment since 1940 ¹		Percent distribution in—	
		Number (in thousands)	Percent	1940	March 1944
Total.....	16, 480	2 +5, 340	2 +48. 0	3 100. 0	3 100. 0
Agriculture.....	580	+90	+19. 4	4. 4	3. 5
Manufacturing.....	5, 590	+3, 270	+140. 7	20. 8	33. 9
Group I.....	2, 690	+2, 210	+462. 7	4. 3	16. 3
Group II.....	2, 160	+830	+62. 6	12. 0	13. 1
Group III.....	730	+220	+42. 6	4. 6	4. 4
Transportation, communication, public utilities.....	680	+340	+98. 4	3. 1	4. 2
Trade, wholesale and retail.....	3, 190	+1, 160	+57. 2	18. 2	19. 4
Finance, business, repair, professional.....	2, 680	+300	+12. 6	21. 3	16. 2
Domestic, personal, recreation services.....	2, 660	-290	-9. 9	26. 5	16. 1
Other (mining, construction, Government, forestry, fishing).....	1, 080	+700	+180. 0	3. 5	6. 6

¹ See footnote 1, p. 2, for reason for comparison with 1940 industry data.

² Takes no account of the women who in 1940 were unemployed or on emergency work and who were a part of the labor force. Their inclusion reduces the increase to about 36 percent.

³ Total exceeds details slightly, since those not classifiable are not included.

The Employment Situation Within Each Industry Group.

Manufacturing.—The war manufacturing industries (group I) showed the enormous net gain in woman employment from 1940 to 1944 of more than 460 percent, and this produced a large gain in the total manufacturing employment of women.

The war industries (group I) drew roughly almost equal numbers of women from home housework and from other industry groups, chiefly from trade, the domestic and personal services, and the second manufacturing group. The essential supply industries (group II) and all other manufacturing (group III) drew their new woman workers most largely from home housework and schools. Group II drew the smallest proportion of its new women workers from other industry groups. Other industry sources of women workers for groups I and II were largely trade and the domestic and personal services, and to some extent the business-professional group. Group III also drew a considerable number of women from group II, and group II from group I. All three groups, but especially I and II, took on relatively large numbers of the unemployed women.

Of those leaving these industries many women went to trade, considerable numbers from groups I and III to business-professional industries, and some from group I to mining-construction-Government. As has been indicated, there also was considerable shifting in the woman labor force between the manufacturing groups, from the war industries (I) to the supply industries (II), and from groups II and III to the war industries.

Mining-Construction-Government.—This group shows a larger proportional increase from 1940 to 1944 than any other except war manufacturing. It gained roughly a third of its new workers each from home housework and from other industries, with a proportion only a little smaller from the schools. Of those entering from other industries, the largest numbers were from trade and the business-professional group. Smaller numbers were from the domestic and other services and from women formerly unemployed. Of those leaving this industry group for other employment, most went to the business-professional group, considerably smaller numbers to the essential supply industries (group II).

Transportation-Communication-Public Utilities.—Woman employment in this industry group almost doubled from 1940 to March 1944. Not far from half of its new women employees came from the schools, and more than a fourth came from housework. From other industries, this group gained women workers from trade and from domestic and other services, with considerable numbers also from the business-professional group. Its losses of women were largely to the mining-construction-Government group and to the war manufacturing industries (group I), with considerable numbers going also to the business-professional group.

Trade.—It may seem surprising that this group had well over half again as many women employees in March 1944 as in 1940. Not far from half the new women workers in trade came from home housework, more than a fourth from the schools, and fewer than in any other group had been in other industries. However, some women entered trade from the domestic and other services, smaller numbers from the business-professional group, the manufacturing supply industries (group II), and those formerly unemployed. Of the women leaving trade, most went to manufacturing, especially to the war industries (group I); some went to the mining-construction-Government group, and somewhat smaller numbers to the business-professional group.

Agriculture.—This group employed almost 20 percent more women in the spring of 1944 than in the spring of 1940. About 60 percent of its new women entrants came from home housework, the group next in size from schools. Of the women from other industry groups over 65 percent were from the domestic and other services. Of the women leaving agriculture, over 60 percent went to the domestic and other services, nearly 10 percent to manufacturing I.

Finance-Insurance-Business-Professions.—This industry group had over 10 percent more women employees in March 1944 than in 1940. Very roughly a third of its new women workers came from each of the sources home housework and the schools. Of those from other industry groups the largest numbers formerly were in trade and the domestic and other services. Appreciable numbers came from among the unemployed and the girls who had been under 14. Of the women who left this group for other industries, most went to war manufacturing

(group I), much smaller numbers to mining-construction-Government and to trade.

Domestic-Personal-Recreation Services.—This was the only group that sustained a net loss in number of women workers between 1940 and March 1944. Though it had this net loss, some women had come newly into such employment. Half these came from home housework, and groups of similar size were from schools and from other industries, chiefly from agriculture, with smaller numbers from trade. Considerable numbers of women workers under 14 years of age entered this group. Of the women leaving these services, most went to manufacturing, especially to the war industries (group I), and appreciable numbers went to trade and to the business-professional group.

MARITAL STATUS OF WOMEN WAR WORKERS

To the worker, the items of greatest importance about her job are the character of the work, the conditions under which it is done, and the amount it pays. Whether she be married or single has in itself no bearing on her job. Whatever their marital status, most working women must support themselves, and in many cases others as well. Among single as well as married women a large proportion are home-keepers and many also care for children. Whether she be single or married, the household responsibilities of the woman worker in addition to her outside job may affect seriously her health and efficiency.

To the employer, the important attribute of his workers is their efficiency on the job, and their marital status is of no concern to him unless it should affect the efficiency or regular attendance of his labor force.

Though marital status is of far less significance in the job than other factors, it is a matter of continuous interest. This may be partly because the more significant factors are so much more difficult to determine than the relatively simple data as to marital status. It also is in part a relic of the early idea that society has the right to regulate the lives of women in more personal matters than it does the lives of men.

In 1940, as at all previous census dates, many more single than married women were working, though married women far exceeded single women in the population. A number of things contributed to this. Aside from the matter of tradition, it has become customary for the young woman to develop expertness in some occupation, to be taught that it is incumbent on her to work as a matter of course, to be at least self-supporting, and often to contribute to the family funds more than the amount of her own upkeep.

Increases in Employment of Women, by Marital Status.

Employment increases in the war period were very much greater among married than single women, both in numbers and in proportions of their marital group that entered the labor force, as the following shows:

	<i>Employment increases from 1940 to March 1944</i>	
	<i>Number (in thousands)</i>	<i>Percent</i>
Single women.....	1, 700	32
Married women.....	3, 130	75

The large increase among single women is not surprising, since if not already employed they are likely to be more free than married women to go to work. As noted on page 2, marital status was not obtained in March but was transcribed from the February schedule for the same family. In cases where marital status was not available from the February schedule, a woman was listed as single unless there was a man of similar age in the family and no other woman possibly his wife. This explains the difference between the marital-status figures shown here and the February figures reported by the Census. In this time of pressure for added labor supply, the married women for the first time in this country's history exceeded single women in the employed group, and that by nearly 2 points (1.7) in March 1944. Since this was a period of accelerated marriage, the proportion of the married women in the population also had increased, as will be discussed later (p. 21). Numbers then employed were as follows:

	Women employed March 1944	
	Number (in thousands)	Percent
Total	16, 480	100. 0
Single	7, 030	42. 7
Married	7, 310	44. 4
Widowed or divorced	2, 140	13. 0

Various Groups of Married Women.

To discuss married women as a complete group loses sight of significant differences in labor-force status between those whose husbands are present in the home and those whose husbands are absent for one reason or another. Women with husbands absent constitute 12 percent of all married women, but they are 26 percent of the married women employed. The data now made available separate information as to married women with husbands present and those with husbands absent, and for the first time those whose husbands are in the armed forces also are singled out. The latter group has become important during this war period in the increase in employment, as the following shows, though a considerable proportion of the service men's wives had left the labor force before March 1944. (See p. 19.)

This section of the report includes some discussion of these various groups of married women, but again attention must be called to the fact that, as explained on page 2, the figures are estimates from a sample. Therefore, while they give a good general indication as to the relationships of the various groups, including the relative place of some that are quite small in comparison with others, they cannot be interpreted as measuring the size of these groups with exactitude.

	Women employed in March 1944		
	Number (in thousands)	Percent	Percent in 1940
All women	¹ 16, 480	100. 0	100. 0
Single	7, 030	42. 7	47. 9
Married	7, 300	—	—
Husband present	5, 370	32. 6	31. 9
Husband absent—			
In armed forces	1, 280	7. 7	5. 6
Not in armed forces	650	4. 0	—
Widowed or divorced	2, 140	13. 0	14. 6

¹ Total exceeds details, as there were 10,000 women for whom husbands' status was not ascertainable.

Women's Labor-Force Status, by Marital Status in March 1944.

Of the women who were in the labor force both before Pearl Harbor and in March 1944, 42 percent were single, 30 percent married with husband present, 16 percent widowed or divorced. Of the new entrants after Pearl Harbor, nearly 44 percent were single, about 36 percent married with husband present, nearly 10 percent were women with husbands in the armed forces, and a somewhat smaller proportion were widowed or divorced.

Of the women not in the labor force in either period, the March 1944 status was that 65 percent were married with husband present, 17 percent single, 13 percent widowed or divorced. Eighty percent of the total were in home housework, some were in school, a few had been under 14 before Pearl Harbor.

Of those who had left the labor force between the Pearl Harbor date and March 1944, 62 percent were married with husband present, about 12 percent each were single or were service wives, nearly 10 percent widowed or divorced. Of the total of this group nearly 93 percent had gone into home housework.

Marital status	Percent in each marital status of those who—			
	Were in labor force at both dates	Entered labor force between dates	Were not in labor force at either date	Left labor force since Pearl Harbor
All groups (in thousands).....	10, 230	6, 650	33, 260	2, 180
Single.....	42	44	17	12
Married:				
Husband present.....	30	36	65	62
Husband absent—				
In armed forces.....	7	9	3	13
Other.....	5	3	2	3
Widowed or divorced.....	16	8	13	10

Relative Stability of Single and Married Women Workers.

A consideration of the women at work in March 1944 who were employed before Pearl Harbor shows as very nearly equal the stability of single and married women. In each group between 56 and 59 percent had been employed before Pearl Harbor, and the numbers of the single and the married women who were at work in both periods are remarkably similar. Of those employed before Pearl Harbor who had continued to work, the smallest proportion was among the women with husbands in the armed forces. Even of these, more than half were employed at both times, but their not remaining employed may be explained by the availability of financial allotments for their livelihood and by their assumption of new responsibilities of home and children, which would fill their time. Increased mobility during wartime might add to or detract from numbers of employed married

women in various areas, depending on a variety of factors. The following summary shows the figures just discussed, with others:

Marital status	<i>Employed before Pearl Harbor and in March 1944</i>	
	<i>Number employed at both dates (in thousands)</i>	<i>Percent of all March 1944 employed women</i>
All women.....	9, 830	59. 7
Single.....	4, 140	58. 9
Married.....	¹ 4, 130	56. 4
Husband present.....	3, 010	56. 1
Husband absent—		
In armed forces.....	660	51. 5
Not in armed forces.....	450	68. 5
Widowed or divorced.....	1, 560	73. 1

¹ Total exceeds details, as status of some husbands not ascertainable.

Marital Status and Former Activity of New Accessions to the Woman Labor Force.

Of the 6,650,000 women in the labor force in 1944 who were not employed before Pearl Harbor, over 40 percent were single and a number not very far short of this were married, with husbands present.

Among the single women, 68 percent formerly were in school. Among the 2 million young women who had been in school, about 90 percent were single women (1,970,000 of them). However, there were a considerable number of young wives with husbands now in the armed forces who were former schoolgirls.

Of the 3½ million women workers who formerly were home houseworkers, more than 2 million were married with husbands present in the home.

The summary following shows the previous activities of the major proportions of the new women workers in the various marital groups:

Marital status	New women workers in 1944 (in thousands)	Percent who before Pearl Harbor were—			
		Unem- ployed	In home housework	In school	Other
Total.....	6, 650	3. 4	54. 1	33. 0	9. 5
Single.....	2, 890	4. 4	13. 5	68. 0	14. 0
Married.....	3, 190	1. 7	86. 0	7. 0	5. 4
Husband present.....	2, 360	1. 1	91. 3	3. 5	4. 1
Husband absent—					
In armed forces.....	620	2. 4	67. 7	20. 4	9. 5
Not in armed forces.....	210	5. 8	80. 1	6. 2	7. 9
Status of husband not ascertainable.....	(¹)		100. 0		
Widowed or divorced.....	570	7. 7	81. 4	. 8	10. 1

¹ Less than 5,000.

Marital Status and Activity of Women Who Left the Labor Force.

Among the women who were employed just before Pearl Harbor, 2,250,000 left employment prior to March 1944. Over 60 percent of these are married women with husbands present. More than a tenth are those with husbands in the armed services, a smaller proportion are single women, and still fewer are widowed or divorced. In each group the great majority of those who left employment returned to

home housework; in the case of married women with husbands present, this group comprises over 96 percent of all those leaving. Very roughly a tenth of the widowed or divorced women and of those with husbands in the armed forces are still in the labor force but unemployed in March 1944, and this is true of a somewhat larger proportion of the single women. Small numbers have returned to school, nearly all of these being single girls.

The summary following shows the activities of the women in each marital group who left employment between Pearl Harbor and March 1944.

Marital status	Women who left employment since Pearl Harbor (in thousands)	Percent who in March 1944 were—			
		Unemployed	In home housework	In school	Other ¹
All women	2,250	6.0	87.8	0.5	5.7
Single	280	13.0	62.5	2.7	21.8
Married:					
Husband present	1,370	3.0	96.3	(²)	.7
Husband absent—					
In armed forces	300	10.1	86.2	.5	3.3
Not in armed forces	80	8.6	83.0	.7	7.8
Status of husband not ascertainable	(³)		100.0		
Widowed or divorced	210	9.1	70.6	.7	19.6

¹ Includes those unable to work.

² Less than 0.05 percent.

³ Less than 5,000.

Increasing Employment of Married Women.

Though single women formerly have made up the greater part of this country's woman labor force, it has become necessary for an increasing number of married women to work, a factor in American economy that cannot be ignored. To begin with, there now are in the population about 2½ million more married women and some millions fewer single women than in 1940 to help carry on the country's production and services. The proportion of married women in the entire woman population increased by 8 or 9 percent, 1940 to 1944, while the number of single women declined by from 6 to 9 percent.

The time has passed when a woman automatically can leave the labor market merely because of her marriage. Efforts to push her out for that inconsequential reason may result in unwarranted family hardship. In an increasing number of instances her earnings are necessary to support the new home. In many cases she could not marry unless her earnings helped to establish the home. In perhaps more cases she could not marry unless she continued to shoulder her premarital financial responsibilities in her parents' home. An important population trend that contributes considerably to this situation is the increase in the proportion of older persons. Young persons often must continue after marriage to carry part of the support of family members who are passing beyond working age or are so young as still to be in school. The responsibility of the individual family for its older members is likely to be unchanged for a number of years to come, since the proportion of these older persons in the population is increasing and their needs are not yet adequately provided for

through the developing assurance systems. In many families some part of this load is being assumed, and must continue to be assumed, by the working wife and the married daughter.

During the war period more than a million married women with husbands present have left employment—1,370,000—most of them to enter home housework. This indicates that those who are able to do so in general are likely to return to their homes. Those who remain in their occupations find it necessary to continue work for some reason, and in the postwar period they should not be discriminated against in employment for arbitrary reasons, such as marital status, that have no connection with their working ability.

The proportional increase in married women, combined with other economic and population factors such as have been discussed, makes it probable that after the war there will be more married women in the labor force than before the war, though the number is likely to be smaller than at the war peak.

The proportions among the women of each marital group who were employed in 1940 and in March 1944 are as follows:

Marital status	Woman population in 1940 ¹		Woman population in March 1944		
	Number (in thousands)	Percent employed in 1940 ²	Number ³ (in thousands)	Percent change from 1940	Percent employed in March 1944
Total.....	50,550	22.0	52,320	+3.5	31.5
Single ⁴	13,940	38.3	13,110	-6.0	53.6
Married.....	30,090	13.9	32,490	+8.0	22.5
Widowed or divorced.....	6,520	25.0	6,720	+3.0	31.8

¹ U. S. Census of 1940. Population, Vol. IV, table IX, p. 5, and table 2, p. 9.

² Ibid., Vol. III, table 68, p. 111.

³ Marital status figures shown here were transcribed from February schedules. See text on p. 18 for explanation.

⁴ Marital status of population shown only for persons 15 and over. Age group 14 assumed to be single.

AGE OF WOMEN WORKERS AND WOMEN NOT AT WORK

Of the women in the labor force in March 1944, 55 percent were under 35 years of age, but of those not in the labor force nearly 60 percent were 35 years of age or older, more than 40 percent being at least 45.

Of women in the labor force before Pearl Harbor as well as in March 1944, over half were 35 years of age or older. The largest group were 45 years old or more, with almost as many 25 to 34. The opposite situation existed among those that newly entered the labor force during the war period, nearly half being under 25 years of age and the largest group under 20.

Of workers who were not in the labor force at either date, 60 percent were 35 years old or more, the largest group being 45 or over. However, of former workers who had left the labor force during the war, 60 percent were under 35, the largest group being 25 to 34.

Labor-force status	Number of women (in thousands)	Percent whose age in March 1944 was—				
		Under 20	20-24	25-34	35-44	45 or over
Total in labor force in March 1944.....	16,880	13.1	18.8	23.0	21.5	23.5
In labor force before Pearl Harbor and also in March 1944.....	10,230	2.9	18.9	26.3	23.9	27.9
Entered labor force since Pearl Harbor.....	6,650	28.6	18.7	17.9	17.9	16.8
Total not in labor force in March 1944.....	35,440	13.4	7.9	19.8	17.6	41.3
Not in labor force at either date.....	33,260	14.0	6.8	18.9	17.6	42.6
Left labor force since Pearl Harbor.....	2,180	4.0	23.9	33.6	17.2	21.1

Former and Present Activity Status, by Age.

Among the home houseworkers, nearly half of those who did not enter the labor force were 45 years of age or more, but of those who went to work after Pearl Harbor over 70 percent were under 45.

Almost a third of the schoolgirls entering the labor force after Pearl Harbor were at least 20 years of age, but of those who did not take jobs only 15 percent were as old as 20.

Few of the women formerly unable to work took jobs after Pearl Harbor; of those who did not take jobs over 90 percent were 45 or more.

Labor-force status in 1941 and subsequent status	Number of women (in thousands)	Percent who were—		
		Under 20	20-44	45 or over
In home housework in 1941:				
Entered labor force.....	3,710	1.7	70.1	28.2
Did not enter.....	26,070	1.0	52.2	46.8
In school in 1941:				
Entered labor force.....	2,280	68.6	31.3	.1
Did not enter.....	2,200	85.3	14.7	.....
Unable to work in 1941:				
Did not enter.....	1,820	1.4	7.7	91.0

Labor-Force Status and Marital Status, by Age.

Of the single women in the labor force in March 1944, 90 percent were under 45 years of age; of those who were widowed or divorced, more than 60 percent were 45 or over. Among the women in the labor force, practically a third of those who were married with husbands present and of those with husbands absent but not in the armed forces were 45 years of age or older. Those with husbands in the armed services were younger women. This distribution of the women of each marital status was similar for the groups that entered the labor force after Pearl Harbor and those who already were in the labor force, except that the women newly entering from the group with husbands absent but not in the armed services tended to be younger than those of the same marital group but already in the labor force.

Among those who were not in the labor force, over 70 percent of the single women and more than a tenth of the women with husbands in the armed services were under 20 years of age. In every other group those not in the labor force tended to be older; more than 90 percent of the widowed and divorced and more than 40 percent of those married

but with husbands present, or husbands absent but not in the armed forces, were at least 45. The proportions who were 45 years of age or older were larger among those who formerly were not at work than among those who had left the labor force, except for single women, among whom more than a tenth of those who left the labor force were under 20 years of age and hence may be expected to have resumed their schooling.

APPENDIX—GENERAL TABLES

[Note.—Because of rounding of numbers, details and totals do not agree in all cases.]

TABLE 1.—*Activity status in March 1944 of women 14 years old or more at that time, by their activity status in week preceding Pearl Harbor*

[In thousands]

Activity status in week before Pearl Harbor	Women in status specified in week before Pearl Harbor	Activity status in March 1944							
		Women in labor force			Women not in labor force				
		Total	Em- ployed	Unem- ployed	Total	In home house- work	In school	Unable, to work	Other
Total	1 52,320	16,880	16,480	400	35,440	28,750	3,940	2,310	430
In labor force	12,410	10,230	10,060	170	2,180	2,020	20	70	70
Employed	12,090	9,970	9,830	130	2,120	1,980	10	70	60
Unemployed	320	260	220	40	60	40	(?)	(?)	10
Seeking work	100	90	70	20	10	10			(?)
Not seeking	80	60	50	10	20	10	(?)	(?)	(?)
Emergency work	140	110	110	(?)	40	30		(?)	(?)
Not in labor force	39,000	6,310	6,100	210	32,690	26,240	3,890	2,210	350
In home housework	29,780	3,710	3,600	110	26,070	25,550	20	390	110
In school	4,480	2,280	2,190	90	2,200	520	1,580	10	90
Unable to work	1,830	10	10		1,820	30	(?)	1,790	
Under 14	2,670	240	230	10	2,440	120	2,290	10	20
Other	230	70	70	(?)	160	30		10	120
Labor-force status not as- certtainable.	910	340	330	10	570	490	30	30	10

¹ Woman population 14 years old or more in March 1944.

² Less than 5,000.

TABLE 2.—*Activity status of major groups of women in March 1944, by status in week preceding Pearl Harbor*

Activity status	Women in status specified in week before Pearl Harbor (in thousands)	Percent of group specified whose status in March 1944 was—				
		Employed	Unem- ployed	In home housework	In school	Other
In labor force:						
Employed	12,090	81.4	1.1	16.4	0.1	1.1
Unemployed	320	69.3	12.0	13.2	1.2	4.3
Not in labor force:						
In home housework	29,780	12.1	.4	85.8	.1	1.7
In school	4,480	48.9	1.9	11.7	35.2	2.3
Under 14	2,670	8.5	.3	4.3	85.7	1.2

TABLE 3.—*Percent distribution of chief groups of women in March 1944 according to activity status in week preceding Pearl Harbor*

Activity status	Percent distribution before Pearl Harbor of women who in March 1944 were—				
	In all types of activity	Employed	Unemployed	In home housework	In school
Total (in thousands)	1 52,320 100.0	16,480 100.0	400 100.0	28,750 100.0	3,940 100.0
In labor force:					
Employed	23.1	59.7	33.5	6.9	0.3
Unemployed .....	.6	1.4	9.7	.1	.1
Not in labor force:					
In home housework	56.9	21.8	28.3	88.9	.4
In school	8.6	13.3	21.6	1.8	40.1
Unable to work	3.5	.1	-----	.1	.1
Under 14	5.1	1.4	2.1	.4	58.2
Other and not ascertainable	2.2	2.4	4.7	1.8	.8

¹ Women 14 years old or more in March 1944.

TABLE 4.—*Occupation group of women employed in March 1944, by labor-force status in week preceding Pearl Harbor*
[In thousands]

Occupation group	Number of women in the group March 1944	In labor force both before Pearl Harbor and in March 1944		Not in labor force before Pearl Harbor	
		Number	Percent of all in occupation group March 1944	Number	Percent of all in occupation group March 1944
Total	16,480	10,060	61.0	6,420	39.0
Professional and semiprofessional	1,490	1,140	76.3	350	23.7
Proprietors, managers, and officials	650	540	82.4	119	17.6
Clerical and kindred	4,380	2,610	59.5	1,770	40.5
Sales	1,240	590	48.0	640	52.0
Craftsmen, foremen, operatives, and laborers except farm	4,920	2,750	55.9	2,170	44.1
Domestic service	1,570	1,110	71.0	450	29.0
Other services	1,650	950	57.5	700	42.5
Farm workers	560	360	65.0	200	35.0
Not classifiable	20	10	25.1	20	74.9

TABLE 5.—*Occupation group in December 1941 of women who shifted to new occupation group before March 1944*

Occupation group in March 1944	Percent distribution of women according to occupation group in which employed before Pearl Harbor							
	Professional and semi-professional	Proprietors, managers, and officials	Clerical and kindred	Sales	Craftsmen, foremen, operatives, and laborers except farm	Domestic service	Other services	Farm workers
All occupations (1,460,000 women) ..	5.3	2.2	7.0	17.1	13.4	27.4	19.0	7.5
Professional and semiprofessional	-----	3.4	32.4	20.6	12.4	8.8	14.2	8.1
Proprietors, managers, and officials	1.0	-----	22.1	33.6	15.7	4.7	20.6	2.4
Clerical and kindred	8.5	4.7	-----	33.7	32.3	5.7	12.1	1.9
Sales	10.2	-----	19.8	-----	26.7	9.7	29.7	1.1
Craftsmen, foremen, operatives, and laborers except farm	5.6	1.7	9.3	14.0	-----	34.7	29.3	4.5
Domestic service	2.9	.4	-----	1.6	4.7	-----	23.3	65.6
Other services .....	.7	1.1	1.4	8.8	17.0	68.7	-----	1.7
Farm workers	6.8	7.0	-----	-----	21.4	64.8	-----	-----

TABLE 6.—*Over-all of women's employment in same occupation and their shifts in and out of labor force and between occupations, December 1941 to March 1944*

[In thousands]

Occupation group	Women who remained in same occupation and women who changed activity or occupation, December 1941 to March 1944 combined ¹	Women in same occupation in March 1944 as before Pearl Harbor	Women who shifted their occupation or employment status				
			Grand total, all shifts	Entered labor force or changed occupation since Pearl Harbor			Left the labor force before March 1944 ² (estimate)
				Total	Entered employment	Changed occupation	
All occupations.....	1 18, 730	8, 370	10, 360	8, 110	6, 650	1, 460	2, 250
Professional and semiprofessional.....	1, 780	1, 080	700	400	360	40	300
Proprietors, managers, and officials.....	740	460	270	190	120	70	90
Clerical and kindred.....	4, 860	2, 210	2, 650	2, 170	1, 830	340	480
Sales.....	1, 400	510	890	730	650	80	160
Craftsmen, foremen, operatives, and laborers except farm.....	5, 380	2, 060	3, 320	2, 860	2, 290	570	460
Domestic service.....	1, 970	1, 000	960	570	470	100	400
Other services.....	1, 910	700	1, 200	950	730	220	260
Farm workers.....	660	340	320	220	200	20	100
Not classifiable.....	50	(³)	50	20	20	10	30

¹ Does not take account of individuals making several shifts within the period.² Distributed according to 1940 Census of Occupations of employed women.³ Less than 1,000.TABLE 7.—*Industry group of women employed in March 1944 by labor-force status in week preceding Pearl Harbor*

[In thousands]

Industry group	Women in industry group in March 1944	In labor force before Pearl Harbor		Not in labor force before Pearl Harbor	
		Number of women	Percent of all in the industry group in March 1944	Number of women	Percent of all in the industry group in March 1944
Total.....	16, 480	10, 060	61. 0	6, 420	39. 0
Agriculture.....	580	380	64. 8	200	35. 2
Manufacturing.....	1 5, 590	3, 170	56. 8	2, 420	43. 2
Group I.....	2, 690	1, 370	50. 9	1, 320	49. 1
Group II.....	2, 160	1, 370	63. 1	800	36. 9
Group III.....	730	440	59. 7	290	40. 3
Transportation, communication, public utilities.....	680	420	60. 9	270	39. 1
Trade, wholesale and retail.....	3, 190	1, 790	56. 2	1, 400	43. 8
Finance, business, repair, professional.....	2, 680	1, 860	69. 6	810	30. 4
Domestic, personal, recreation services.....	2, 660	1, 840	69. 1	820	30. 9
Other (mining, construction, Government, forestry, fishing).....	1, 080	590	54. 6	490	45. 4
Not ascertainable.....	20	10	40. 0	10	60. 0

¹ See p. 12 for industries included in each group.

TABLE 8.—Former industry group of women who shifted to new industry group

Industry group to which women shifted since Pearl Harbor	Percent distribution of women according to industry group in which employed before Pearl Harbor									
	Agriculture	Manufacturing				Transportation, communication	Trade	Business, professional	Domestic and other services	Mining, etc.
		Total	Group I	Group II	Group III					
All industries (1,880,000)	6.0	8.8	3.7	12.5	6.4	26.4	13.7	24.6	2.4	
Agriculture	3.2	13.3	4.0		9.4				6.4	
Manufacturing	1.6	30.3				6.5	6.3	67.4	2.0	
Group I	5.4	14.7	8.3	20.9	9.3	42.5	18.3	30.8	2.8	
Group II	3.1	30.4	9.2	21.2	6.4	29.7	14.8	20.9	4.1	
Group III	2.0	12.3	4.2	8.1		35.9	9.1	27.4	4.4	
Transportation, communication, public utilities	1.8	23.7	4.8	14.2	4.7	23.4	8.7	23.3	2.0	
Trade, wholesale and retail	3.2	19.6	5.8	3.3		34.6	14.2	27.7	4.4	
Finance, business, repair, professional	47.6	8.7	3.0	3.6			20.5	43.3	9.6	
Domestic, personal, recreation services	2.4	17.3	6.2	7.4		31.6	11.1	32.7	1.2	
Other (mining, construction, Government, forestry, fishing)						26.4	23.2	12.6		

TABLE 9.—*Labor-force status of women in March 1944 and in week preceding Pearl Harbor, by marital status*

[In thousands]

Labor-force status	Marital status					
	Total ¹	Single	Widowed or divorced	Married, husband present	Married, husband absent in the armed forces	Married, husband absent not in the armed forces
NUMBER OF WOMEN						
Woman population.....	52, 320	13, 110	6, 720	28, 510	2, 580	1, 360
In labor force March 1944.....	16, 880	7, 230	2, 180	5, 460	1, 330	670
In labor force at both dates.....	10, 230	4, 330	1, 630	3, 090	700	470
Entered labor force between dates.....	6, 650	2, 900	550	2, 370	620	200
Under 14 before Pearl Harbor.....	240	230	-----	-----	(³)	(³)
Not in labor force March 1944.....	35, 440	5, 880	4, 540	23, 050	1, 250	690
Not in labor force at either date ²	33, 260	5, 610	4, 330	21, 700	980	620
At both dates—						
In home housework.....	25, 550	900	2, 640	20, 740	750	510
In school.....	1, 580	1, 570	-----	(³)	10	(³)
Unable to work.....	1, 790	300	1, 230	210	10	40
Under 14 before Pearl Harbor and not in labor force March 1944.....	2, 440	2, 400	-----	20	10	(³)
Left labor force since Pearl Harbor.....	2, 180	270	210	1, 350	280	70
In home housework March 1944.....	2, 020	180	170	1, 340	270	70
PERCENT DISTRIBUTION						
Woman population.....	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0
In labor force at both dates.....	19. 6	33. 0	24. 2	10. 8	27. 3	34. 5
Entered labor force between dates.....	12. 7	22. 1	8. 3	8. 3	24. 2	14. 8
Not in labor force at either date.....	63. 6	42. 8	64. 4	76. 1	37. 8	45. 4
Left labor force since Pearl Harbor.....	4. 2	2. 1	3. 1	4. 7	10. 8	5. 3

¹ Totals exceed cross details, as details not shown for 40,000 women married but with husband's status not ascertainable. For source of data on marital status see p. 18.

² Totals exceed details, as details not shown for 1,900,000 in other activities.

³ Less than 5,000.

TABLE 10.—*Percent distribution of women according to marital status, by labor-force status in March 1944 and in week preceding Pearl Harbor*

Labor-force status	Total number of women ¹ (in thousands)	Percent of total women who were—				
		Single	Widowed or divorced	Married, husband present	Married, husband absent in the armed forces	Married, husband absent not in the armed forces
Woman population.....	52, 320	25. 1	12. 8	54. 5	4. 9	2. 6
In labor force March 1944.....	16, 880	42. 8	12. 9	32. 3	7. 9	4. 0
In labor force at both dates.....	10, 230	42. 3	15. 9	30. 2	6. 9	4. 6
Entered labor force between dates.....	6, 650	43. 5	8. 3	35. 6	9. 4	3. 0
Under 14 before Pearl Harbor.....	240	97. 1	-----	-----	1. 3	1. 5
Not in labor force March 1944.....	35, 440	16. 6	12. 8	65. 0	3. 5	2. 0
Not in labor force at either date.....	33, 260	16. 9	13. 0	65. 3	2. 9	1. 9
At both dates—						
In home housework.....	25, 550	3. 5	10. 4	81. 2	2. 9	2. 0
In school.....	1, 580	99. 3	-----	. 2	. 4	. 1
Unable to work.....	1, 790	16. 7	68. 7	11. 7	. 3	2. 5
Under 14 before Pearl Harbor and not in labor force March 1944.....	2, 440	98. 6	-----	1. 0	. 3	. 1
Left labor force since Pearl Harbor.....	2, 180	12. 4	9. 6	61. 8	12. 7	3. 3
In home housework March 1944.....	2, 020	9. 0	8. 2	66. 2	13. 2	3. 2

¹ Aged 14 and over. For source of data on marital status see p. 18.

TABLE 11.—*Marital status and age of women in labor force March 1944*

Marital status of women in labor force	Number of women (in thou- sands)	Percent whose age in March 1944 was—		
		Under 20	20-44	45 or over
Total in labor force in March 1944.....	¹ 16,880	13.1	63.4	23.5
Single.....	7,230	27.8	62.4	9.8
Widowed or divorced.....	2,180	.1	38.7	61.2
Married, husband present.....	5,460	1.2	67.8	31.0
Married, husband absent, in armed forces.....	1,330	8.6	89.7	1.6
Married, husband absent, not in armed forces.....	670	1.4	66.8	31.8
In labor force both March 1944 and before Pearl Harbor.....	¹ 10,230	2.9	69.2	27.9
Single.....	4,330	6.1	79.3	14.6
Widowed or divorced.....	1,630	.1	38.4	61.5
Married, husband present.....	3,090	.4	65.8	33.7
Married, husband absent, in armed forces.....	700	2.8	95.5	1.7
Married, husband absent, not in armed forces.....	470	.5	64.5	35.0
Came into labor force since Pearl Harbor.....	¹ 6,650	28.6	54.6	16.8
Single.....	2,900	60.3	37.1	2.6
Widowed or divorced.....	550	.2	39.7	60.1
Married, husband present.....	2,370	2.3	70.3	27.4
Married, husband absent, in armed forces.....	620	15.3	83.2	1.5
Married, husband absent, not in armed forces.....	200	3.6	72.1	24.2

¹ Total exceeds details, as details not shown for women with husbands' status not ascertainable. In interpreting, note statement as to sample on p. 2, and p. 18.

TABLE 12.—*Marital status and age of women not in labor force March 1944*

Marital status of women not in labor force	Number of women (in thou- sands)	Percent whose age in March 1944 was—		
		Under 20	20-44	45 or over
Total not in labor force in March 1944.....	¹ 35,440	13.4	45.3	41.3
Single.....	5,880	71.9	15.9	12.2
Widowed or divorced.....	4,540	.1	6.6	93.2
Married, husband present.....	23,050	1.4	58.1	40.5
Married, husband absent, in armed forces.....	1,250	13.5	84.3	2.3
Married, husband absent, not in armed forces.....	690	4.1	49.3	46.5
Not in labor force at either date.....	¹ 33,260	14.0	43.4	42.6
Single.....	5,610	74.8	13.2	12.0
Widowed or divorced.....	4,330	.1	5.9	94.0
Married, husband present.....	21,700	1.3	56.8	42.0
Married, husband absent, in armed forces.....	980	15.7	81.6	2.7
Married, husband absent, not in armed forces.....	620	3.7	47.9	48.5
Left labor force since Pearl Harbor.....	¹ 2,180	4.0	74.8	21.1
Single.....	270	11.1	72.1	16.8
Widowed or divorced.....	210	1.0	21.6	77.4
Married, husband present.....	1,350	2.6	80.3	17.1
Married, husband absent, in armed forces.....	280	5.5	93.9	.6
Married, husband absent, not in armed forces.....	70	8.0	62.0	30.1

¹ Total exceeds details, as details not shown for women with husbands' status not ascertainable. See p. 18.



LIFTING AND CARRYING WEIGHTS BY WOMEN IN INDUSTRY

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LIFTING AND CARRYING WEIGHTS BY WOMEN IN INDUSTRY

- I. Guard against injury to physique in the lifting of heavy weights.
- II. Analyze the elements in weight lifting to develop methods of saving energy.
- III. Overcome the dangers involved in lifting heavy weights by using certain methods.
 1. Introduce lifting and conveying devices.
 2. Provide efficient conditions for work.
 3. Inform workers as to proper methods of lifting.
- IV. Train workers to use the most economical methods of carrying weights.
- V. Protect the health of workers in heavy industries by physical examinations.
- VI. State regulation of weight lifting is more effective through the general authority granted regulatory bodies than through specific laws fixing maximum weights.

The selection of a woman for a job requiring constant lifting, carrying, pushing, or pulling should depend not only on her weight and height but on the amount of strength she has. An apparently sturdy woman may find such work on heavy materials far beyond her capacity, whereas a slight woman may have the strength to do it without injury to herself if she does it properly. The plant physician should decide on a woman's physical ability in each heavy job.

The distances that loads are to be carried also should be considered in determining their size; and not only how far they are to be carried, but how constantly, and whether up or down stairs, through crowded aisles, or over uneven floors or ground.

As with lifting and carrying, the safe load to be pushed in a wheelbarrow or a cart will vary with the conditions of work. For short periods at a stretch, over a smooth floor and on the level, a woman can push more than she can if the work is constant over a period of hours, if the ground is rough, or if she pushes up and down ramps or other elevations. It is important also that whoever loads the wheelbarrow or cart should pile the material carefully, so as to balance the load, to relieve the woman of the weight as much as possible, and to avert the danger of spills.

Many occupations in which women are employed involve

the lifting and carrying of loads. The work of women in service and trade industries (such as waitresses), and in factory production, frequently brings exposure to the strain of heavy lifting. Even light manufacturing involves the lifting and carrying of materials during processes of manufacturing or packaging; and the heavier industries bring additional problems. A list of jobs on which women were found by the Women's Bureau to be working during World War I,¹ and which has been duplicated during the past few years, includes, for example:

Lathe operation on heavy work. Heaviest in munitions plants, where they cut shells weighing 19 to 100 pounds. (On heavy shells mechanical lifting aids were available.)

Operating automatic gear cutting or shaping machines to cut spur and bevel gears. Blanks from which gears were cut by women were very heavy.

Turning metal into rods, bars, wire, or sheets. Feeding and receiving strips through rolls. Much of the work entailed lifting of heavy ingots.

Core making. Heaviest core made successfully by hand by women in 26 firms studied weighed 45 pounds.

Loading shells. Lifting shell (weighing from approximately 20 pounds up), holding plug against revolving shaft, which grasped plug and unscrewed it.

Labor in petroleum refining. (369 women were found in 6 firms employed as laborers in various types of heavy work.)

Tire-making processes. These involved lifting tires weighing 14 pounds or more on and off spools. In some cases men were hired to do the lifting.

Unskilled manual labor. Much of this work involved lifting and pushing heavy materials. The maximum weight pushed by a woman was 750 pounds.

Loading and unloading.

Transporting material.

Shoveling sand and coal.

Piling boards in lumber mills.

In Great Britain still further types of heavy work were done by women during World War I. In a study of the physique

¹ See Women's Bureau Bull. No. 12, 1920, especially pp. 100, 106-107, 108, 124, 128, 129-130, 133. (Out of print but available in libraries.)

of over 3,000 industrial women, they were found doing severe muscular work in the following occupations:²

Chemical works—Navy work: One woman shoveled 20 to 25 tons of crude borite a day, lifting it to a height of about $2\frac{1}{2}$ feet.

Brick setting and drawing—Filling and emptying ovens: Each girl carried three or four bricks, weighing $26\frac{3}{4}$ pounds each, a distance of 70 to 80 yards.

Brick molding: Slammed clay into wooden molds, then placed molded brick to dry on steam-heated stone floor. Women wheeled barrows containing 4 to $4\frac{1}{2}$ hundredweight of bricks.

Tin-plate industry—Opening, cold rolling, reckoning, pickling: Lifting was an essential part of each process. The average proportion of load to body weight was found to be 58 percent for young girls.

Sanitary-pipe manufacture: Carrying pipes of 24 to 50 pounds about 40 yards to be dried. Average weight lifted, 6.6 tons a day. Also, feeding pipe-making machines with wedges of clay. (The physique of girls in this industry was poor.)

Nuts and bolts: Press operators carried pans of nuts and bolts to their benches, the size of the load being left entirely to the worker. One woman carried as much as 93 percent of her body weight.

Pottery: Carrying of tiles, and baskets and bungs of biscuit ware. Ordinarily two women carried basket between them.

Paper: Carrying bundles of paper for sorting. Average load 57 percent of worker's body weight.

Aerated waters and beer bottling: **Stacking crates** to heights sometimes exceeding height of worker.

Woolen and worsted: Load of 180 to 190 pounds carried by two women.

I. Guard Against Injury to Physique in the Lifting of Heavy Weights

Much that may be said as to the proper methods of saving human energy in weight lifting applies to men as well as to women. Moreover, new applications of energy-saving lifting devices in industry are appearing constantly. However,

² Great Britain. Industrial Fatigue Research Board, Report No. 44, *The Physique of Women in Industry*, 1927, pp. 20, 21, 118, 120, 121, 122, 125.

there still are important physical factors that must be considered as applying particularly to women.

1. Limited strength of average woman precludes her employment in work that is excessively heavy.

It has been found that the strength of the average woman is a little more than half that of the average man. This has been substantiated again by recent reports, which continue to agree with quite early studies made in Great Britain and other European countries.

The International Labor Office accepts the results of Josephine Joteyko's researches in France. She found that tests gave the index of strength of women by the dynamometer as 570/1000 that of man; the index of resistance by the ergograph as 679/1000.³ Research by the British Industrial Fatigue Research Board substantiates these findings.⁴ Still earlier, in fact, more than 55 years ago, the Anthropological Institute of Great Britain and Ireland concluded that "the female differs from the male more conspicuously in strength than in any other particular." This conclusion was reached as a result of a study by a pioneer authority in this field, Sir Francis Galton, who made careful examination of almost 6,400 adults—4,726 men and 1,657 women.⁵

2. Heavy lifting especially affects women's physical structure.

Continual lifting of heavy loads results in deformities of bone structure that may have serious effects at childbirth. To quote from findings of the International Labor Office: ⁶

When women have habitually to carry heavy loads (e.g. in the country or mountainous districts), skeletal deformities are noted (of the vertebral column, lower limbs), alterations in the thoracic capacity and abdominal walls. Thus, for example, a broadening in the lumbar region of the spine in women who carry loads with crushing together of the vertebrae, bringing about diminution in height, deformity of the pelvic basin with harmful effects on the development of pregnancy. Occupational cramp of the lateral muscles of the neck, pains of the

³ Joteyko, Josephine, *La Fatigue et la Respiration Elementaire du Muscle*. Paris, 1896. Quoted in International Labor Office, *Occupation and Health*, Brochure No. 152, *Women's Work*, Geneva, 1929, p. 5.

⁴ Great Britain. Industrial Fatigue Research Board, *op. cit.*

⁵ Galton, Sir Francis. In *Journal of the Anthropological Institute of Great Britain and Ireland*, vol. XIV, February 1885, pp. 275, 278.

⁶ International Labor Office, *Occupation and Health*, *op. cit.*, p. 18.

brachial plexus, suboccipital nerves, movable kidneys, cardiac and thyroid hypertrophy, and so forth have been reported.

During pregnancy marked variations in certain physical factors should be considered in connection with weight lifting. Respiration, pulse rate, composition of the blood, and so forth, which even in the normal woman differ from those of man, show more marked variations during pregnancy. Pregnancy affects the work of the heart, increases the volume of the blood, the venous blood pressure and the heart rate and displaces the heart upward. There is noticeable diminution of the amplitude of the respiratory movements, and a diminution of muscular power.

Similarly, some authorities have found that lifting aggravates menstrual troubles. A Russian investigation showed menstrual troubles prevalent among 69.5 to 78 percent of the women who did heavy lifting and carrying, as against 26.5 to 39.2 percent among those in the occupations not requiring weight lifting. These findings were based on a study of 1,450 women employed in the peat, coal, and metallurgical industries. As a control, women in textile work and tramway conductors in Moscow were selected. The troubles referred to were most frequent for the younger groups—19 to 25 years. Inquiry showed the difficulties to be in direct proportion to the amount of occupational work.⁷

II. Analyze the Elements in Weight Lifting to Develop Methods of Saving Energy

The elements entering into weight lifting and carrying must be analyzed, and conditions and methods of work adapted to the worker, in order to promote efficiency in the employment of women in occupations of a heavy nature. To do this, scientific study should be given to the following factors, both separately and in combination:

1. Weights of units lifted.
2. Ratio of load to body weight.

⁷ Okunjeva, Steinbach, and Schtscheglowa, Moscow, 1927, quoted in International Labor Office, Occupation and Health, Brochure No. 152, Women's Work, Geneva, 1929, pp. 19-20; Moore and Barker, American Journal of Physiology, 1923, p. 405; Lee, Frederic S. The Human Machine and Industrial Efficiency, London, 1918, pp. 58 and 59.

3. Quantity lifted in a day.
4. Levels of lifting.
5. Compactness of load.
6. Distance and changes of level traversed in carrying load.
7. Interference of loads:
 - With normal gait.
 - With normal respiration.
 - With normal center of gravity.
 - With local movement, i. e., pressure on joints or bones or chafing of skin, and so forth.
8. Temperature and ventilation of workplace.
9. Method of lifting:
 - a. Wide stance results in unnecessary strain on groin.
 - b. Lifting with shoulders lower than hips results in unnecessary strain on back muscles.

III. Overcome the Dangers Involved in Lifting Heavy Weights by Using Certain Methods

The analysis in the preceding paragraphs points naturally to the means for the most efficient employment of women who must use heavy materials or carry loads in connection with their work.

1. Introduce lifting and conveying devices.

Mechanical devices for conveyance are now designed to meet almost every serious problem of weight lifting and carrying.

2. Provide efficient conditions for work.

The first step should be to plan the best possible arrangement of the work. Such arrangement should include ⁸ (1) Reorganization of work lay-out to eliminate unnecessary lifting from one level to another. Vertical lifting is most costly in energy. Much lifting women do in feeding machines can be eliminated by having material on a level with the machine; (2) where lifting is necessary, arranging the work so that the worker does not have to stack above her height; (3) reorganization of work lay-out to shorten distances where carrying is necessary; (4) temperature and ventilation standards are of particular importance, especially in heavy work where allow-

⁸ Weight Lifting by Industrial Workers. Home Office Safety Pamphlet No. 16, London, 1937, pp. 16, 17, 18, 19.



Figure 1.—Stacking above the worker's height strains the abdominal muscles.

Young girls and boys lack the judgment to determine the unit of weight to be lifted. For example, investigation showed that a girl suffering from a strained back was carrying about two and a half times the normal load, though she had to walk only about 30 feet, because she was working on a bonus system and wished to save time. Other girls were doing the same thing.

(3) Some methods of lifting and of carrying loads are much more efficient and less tiring than others, and workers should have instruction in these methods. Back muscles are protected from strain and exert a minimum of effort when the worker bends her knees, crouches by the object, then lifts by straightening the knees and standing erect.

ance should be made for loss of excess heat without undue chilling of body.

3. Inform workers as to proper methods of lifting.

First instruction to the new employee is not sufficient. It must be repeated often.

(1) Women in particular should be informed as to methods that will prevent undue abdominal strain:

To keep the feet close to the object.

To use a narrow stance, the feet approximately 8 to 12 inches apart.

(2) Young girls need very special supervision and training in proper methods of lifting and carrying. Studies show that young girls may suffer seriously from lifting because of the possibility of malformation in bone development.

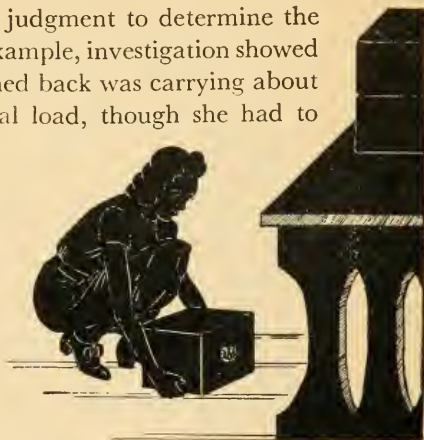


Figure 2.—With narrow stance and feet close to object worker bends her knees, putting brunt of strain on leg muscles rather than back. (By courtesy of National Safety Council, *Safety Fashions for Women in Industry*, p. 10.)

A frequent cause of back injury is improper lifting, that is, lifting with the back muscles rather than the leg muscles. A special survey by the New York Department of Labor found 72 cases of back injuries to women lifting heavy materials in industries of the State in 1930⁹.

IV. Train Workers To Use the Most Economical Methods of Carrying Weights

The major considerations in the carriage of weights are to secure the greatest economy of effort consistent with efficient work and to assure freedom from strain in carrying that must be continued for a considerable period.

1. Of the common methods of carrying by women in industry the most economical and comfortable is carriage on the shoulder. This method leaves free the lower limbs and does not result in fixation of the chest.

2. Tray carrying, a common job requirement for women in factories as well as in domestic work and other service occupations, is satisfactory only for short distances and irregular work. Local fatigue of arms and wrists is marked in continued transportation by this method. There may also be unpleasant pressure on abdomen or thighs. The tray may interfere seriously with normal gait and alter bodily posture to the point

of greatly increasing fatigue. Prolonged work with such loads may result in an habitual slouch. A load carried in front of a worker may interfere with vision of the floor surface and be a cause of falling. Heavy loads interfere with respiratory and circulatory functions. Where this type of carrying cannot be avoided, work periods should be appropriately short, or rest periods should be especially frequent.

3. Carrying bundles at the sides,



Figure 3.—Tray carrying is fatiguing to arms and may be a cause of falls.

⁹ New York. Industrial Bulletin, April 1931, Compensated Back Injuries in New York State in 1930, pp. 222-224.

one in either hand, has the advantage of not disturbing body balance and not interfering with freedom of locomotion. However, marked local fatigue in hands and arms makes this an impractical method for *long continued* work. The drag on the shoulders interferes somewhat with respiration.

4. Carrying on the hip requires bending of the body to the side to compensate for the lateral load. It interferes with normal walking and to some extent with natural breathing. Workers find it particularly tiring because of fatigue to the arm and rubbing of the hip. For certain purposes it may be an advantage, since the load can be taken up from a table with ease and it leaves one arm free.



Importance of rest periods in heavy occupations.

If awkward postures in lifting and

carrying are unavoidable, they should be maintained only for short periods.

Rest periods have been used with good results in heavy industries. They are essential because of the effect of lifting and carrying on respiration—the need for making up oxygen deficits. The length of such rests should be related to the duration of the periods of muscular work and its severity.

V. Protect the Health of Workers in Heavy Industries by Physical Examinations

During World War I good results in protecting the health of



Figure 5.—Interference with normal respiration and gait results from carrying weights on the hip.

women workers were obtained in some companies by pre-employment physical examinations. Where the employment rights of the worker are adequately protected, such examinations are advisable in heavy industries employing women.

In these examinations it is especially important that proper safeguards be assured for the worker. It is suggested that a plan similar to the Wisconsin one be put into effect for that purpose. This plan, adopted unanimously by representatives of organized labor, calls for examinations to be made by a physician selected by the employer. In the event of grievance the examined employee makes written complaint to the State Industrial Commission, an investigation is made, and if the grievance is justified the employer is required to have all further examinations made by another physician.¹⁰

The job should be fitted to the capacities of the individual. When a prospective worker gives a history suggesting disorders such as tumors or complications of pregnancy, examination should indicate whether carrying heavy materials may be suitable work. In every case the medical history should include a definite statement about the interval between a previous pregnancy and employment involving heavy lifting.

Of course, there are many disorders not peculiar to women that should preclude employment in heavy work and should be found in examination prior to employment. Such examination should weed out cases of heart disease, hypertension, obesity, neurocirculatory asthenia, tuberculosis, hernia, and other conditions.

VI. State Regulation of Weight Lifting Is More Effective Through the General Authority Granted Regulatory Bodies Than Through Specific Laws Fixing Maximum Weights

Though it is frequently stated that the most economical load is about 35 percent of body weight, there are so many variations both above and below this figure in individual cases that scientific establishment of a maximum that would

¹⁰ Wisconsin Industrial Commission. Physical Examination of Industrial Workers. Madison, Wis., 1939.

apply to all women is impossible. All the elements in weight lifting, such as compactness of load, levels of lifting, and so forth, must be considered as well as the physical characteristics of the individual who is to do the work.

In line with the method of protection through individual physical examination, State administrative bodies engaged in factory inspection should have authority to inspect and to advise and fix rules concerning conditions under which women work where the jobs involve heavy lifting.

The present State regulations pertaining to weight lifting serve chiefly to show that a need for protection of women has been recognized in nine States. The following list summarizes these regulations:

CALIFORNIA.—

1. Object weighing *50 pounds or over* must be equipped with pulleys, casters, or other contrivances so that it can be moved easily. (Any establishment employing women.)

2. Prohibits the carrying of an object weighing *10 pounds or over*, up or down a stairway that rises more than 5 feet from its base. (Any occupation, trade, or industry.)

3. Limits to *25 pounds* weight to be lifted or carried. (Any occupation, trade, or industry.) [This 25-pound limitation in practice superseded the 50-pound maximum fixed by statute.]

Exceptions permitted during war period, upon investigation.

MASSACHUSETTS.—

1. Receptacle weighing with its contents *75 pounds or over* may not be moved unless provided with pulleys or casters. (Manufacturing and mechanical.)

2. Prohibits lifting of cores the total weight of which *exceeds 25 pounds*, unless assisted by mechanical appliances that limit physical effort to 25 pounds. (Core rooms.)

Exceptions permitted during war period, upon investigation.

MICHIGAN.—

Prohibits lifting of *more than 35 pounds* or carrying of *more than 20 pounds* when ascending stairs. Overhead lifting or stacking forbidden. (Any occupation.)

MINNESOTA.—

Prohibits handling of cores the total weight of which *exceeds 25 pounds*. (Core rooms.)

NEW YORK.—

Prohibits handling of cores when the combined weight of core, core-box and plate *exceeds 25 pounds*. (Core rooms.)

Exceptions permitted during war period, upon investigation.

OHIO.—

Prohibits employment requiring frequent or repeated lifting of weights *in excess of 25 pounds*. (Any occupation.)

During war period *35 pounds* permitted.

OREGON.—

Limits to *25 pounds* weight to be lifted and to *15 pounds* any article or receptacle carried for more than 10 feet. (Any occupation, trade, or industry.)

Order rescinded for duration of the war emergency.

UTAH.—

Prohibits lifting of "burdens" *in excess of 30 pounds* and carrying of "burdens" *in excess of 15 pounds*. (Any establishment.)

WASHINGTON.—

Prohibits lifting an excessive burden. (Canning; fruit and vegetable packing; manufacturing or other mercantile establishments. The order last-named adds "or carrying" to the prohibition.)

